

hi-fi news

& Record Review

MUSIC SENSATION

Exclusive: The amplifier that looks and sounds like nothing else

'100 years of
valve history
in 4 pages'

See p16



BOB DYLAN'S
BLONDE ON BLONDE LP



Group Test

£1000 phono stages

Pass Labs

XA60.5 monoblocks

Musical Life

Andante MC pickup

Green Mountain

Eos loudspeaker

Townshend Rock 7E

The turntable with a trough



- **PLUS** 14 pages of music • **VINYL RE-RELEASE** Jeff Buckley's *Grace* on 180g LP
- **AUDIO MILESTONES** Revox B77 open reel • **INVESTIGATION** A brief history of valves
- **ON LOCATION** Cabasse loudspeakers • **HI-FI @ HOME** Classical system - from Trio to dCS

UK £4.00 US \$9.50 Aus \$9.95



0 4 >

MUSICAL FIDELITY

PRIMO Pure Class A Tube Preamplifier

New from Musical Fidelity. 14 tubes. Triode. Class A.
Fully balanced. Zero feedback. Mega technical performance.





ABOVE: Pure class from the pen of Nelson Pass. The XA60.5 amp, p52



ABOVE: Totally tubular CD player from Eastern Electric. Press play on p48

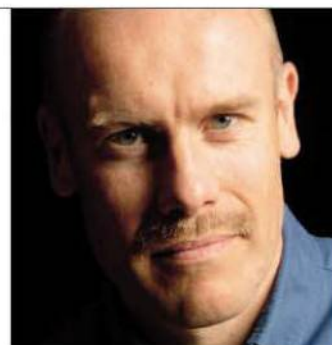


VINYL: Jeff Buckley's *Grace* is re-released as a Limited Edition 180g LP (p66) while Bob Dylan's *Blonde on Blonde* is our Vinyl Icon (p68)

It was that time between Christmas and New Year when turkey sandwiches were beginning to lose their novelty, the lab had been given an almighty, if slightly premature spring clean and I had exhausted my new supply of BD concert discs. I was consoling myself with some seasonal sanity testing of the MM/MC phono amps reviewed by Steve Harris in this very issue [p39], when I received a mysterious call.

'You must come and hear this thing,' he announced. The continental twang of Ricardo Franassovici, doyen of high-end audio distribution and proprietor of Absolute Sounds was unmistakable. 'Thing, what thing?' My feigned disinterest was unconvincing. 'I will not say, but it is digital and very technical.' Ricardo was clearly in enigmatic mood so I headed into London to discover what had him so excited.

And there was our cover story, looking like little more than a set of art deco bathroom scales parked between his favoured Magico M5 speakers. Driven from the digital output of a Kalista CD player the sound of this inch-high mirrored slab was instantly arresting, a condition that warns the experienced audiophile not to make a snap judgement. All too often a firework of a product ends up frazzling your patience in the longer term. But as the



hours passed and the soulful sound of Womack & Womack rolled into the electronic beat of Skylab I was no less enthralled by the insight offered by this Devialet amplifier [p22].

By now the lid was off and we were beginning to discover what made it tick. Then the penny dropped – this 'thing' could

'This 'thing' will accept Studio Master quality 192kHz/24-bit audio..'

be driven directly from Studio Master quality 192kHz/24-bit digital audio, and we were hearing mere 44kHz/16-bit CD!

Clearly, there's huge potential in Devialet's technology, much of it defined in a series of patents. I sincerely hope this group of engineers takes the opportunity to grow into a formidable hi-fi brand, for it would be a genuine loss to the enthusiast community if its IP were mopped-up and shelved by some faceless semiconductor corporation.

PAUL MILLER EDITOR

HI-FI NEWS' EXPERT LINE UP: THE FINEST MINDS IN AUDIO JOURNALISM BRING THEIR EXPERIENCE TO BEAR ON ALL AREAS OF HI-FI & MUSIC



BARRY FOX
Investigative journalist supreme, Barry is the first with news of the latest developments in hi-fi and music technologies



JOHN BAMFORD
HFN's Features Editor has a penchant for massive speakers and hi-res audio. JB travels the globe for our On Location specials



KEN KESSLER
is currently our Senior Contributing Editor and almost singularly responsible for the renaissance in valves and 'vintage hi-fi'



KEITH HOWARD
has written about hi-fi for 30 years, and edited *Hi-Fi Answers* for nine. KH performs our speaker and headphone lab tests



STEVE HARRIS
Former Editor of this very title from 1986 through to 2005. A lifetime in audio and a love of jazz makes Steve a goldmine



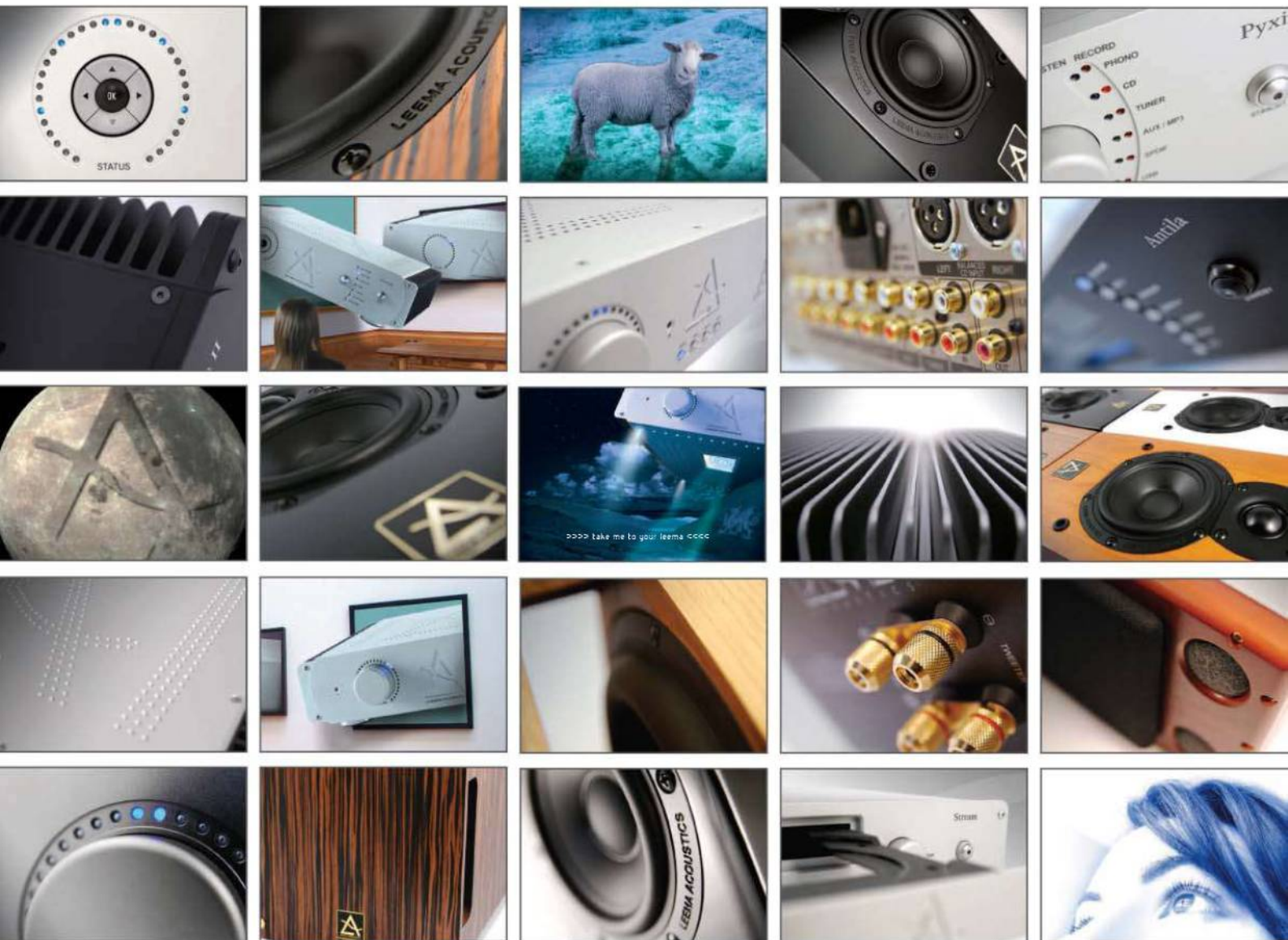
JOHN HOWES
Foremost collector and archivist of vintage hi-fi, famous for the UK's bi-annual Audio Jumble, John shares his experience with *HFN*



STEVE SUTHERLAND
Worked on *Melody Maker* and then edited *NME* from 1992-2000, the Britpop years. Steve brings a unique slant to our Vinyl Release pages



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LEFT:
Thorens TEP 302 – MM/MC phono preamp with switchable gain and loading, p45



Beatles LP Update

HOW MUCH LONGER FOR THE BEATLES RE-MASTERED BOX-SET ON VINYL?

Following *Hi-Fi News'* exclusive Dec '09 report showing what appeared to be a new *Beatles For Sale* record label [right], speculation that a Beatles remastered vinyl box set may be on its way continues to grow. Recently, EMI revealed it was ceasing to repress old versions of the band's famous studio catalogue on LP.

Until this year the Beatles' celebrated repertoire, from *Please Please Me* to *Let It Be*, had always been almost universally available on vinyl, with classics such as *Sergeant Pepper's Lonely Hearts Club Band*, *Revolver* and *Abbey Road* continuing to do decent

business into the millennium. Now, with the majority of titles out of print, EMI has said it will no longer replace older analogue pressings. Only post-break up compilations such as *Yellow Submarine Soundtrack* and *Singles Collection 1* will remain in stock.

This paves the way for cleaned-up releases of the 12 individual studio albums from 1963-1970 (as well as *Magical Mystery Tour* and *Past Masters* albums), and the mouthwatering prospect of a boxed collectors' set. Such an item would complement last year's newly mastered mono/stereo CD boxes, which hit physical and

online stores around the world in September. The most likely bet for a vinyl box would again be towards the final quarter of 2010, to maximise sales and publicity in the run-up to Christmas.

EMI is refusing to confirm specific details, with loyal studio engineers characteristically tight-lipped about the remastering project. But it seems unthinkable that the company will not act to satisfy the significant demand among the Beatles' core base of 50 and 60-something fans, for whom the vinyl LP format remains the only way to hear the Fab Four at their original and best.



Ypsilon Aelius Monoblock

NOVEL HYBRID AMPLIFIER CLAIMED TO 'DRIVE ANY SPEAKER'

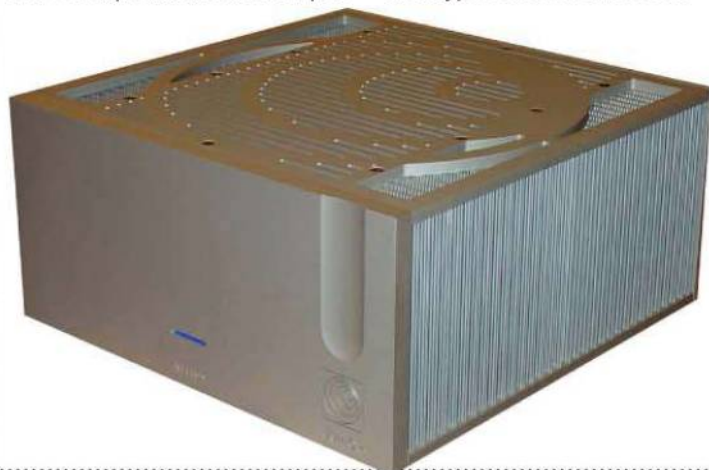
Seen in pre-production form at CES earlier this year and weighing in at 50kg a piece, the new Aelius power amplifiers will soon be available all the way from Greece to tempt UK audiophiles.

In keeping with Ypsilon's tradition of designing amplifiers with a 'twist', its latest creation employs an EZ81 valve as rectifier in its choke-regulated supply together with a C3G valve-based input, transformer-coupled to a 220W/8ohm MOSFET output

stage. Moreover, these solid-state power amps are richly biased to deliver the first 60W/8ohm in pure Class A.

Each of these massive monoblock amplifiers is said to combine 'single-ended sonic purity with push-pull power' and may be operated in either balanced or single-ended mode to suit system and speakers.

Amadeus Audio, 07799812271
www.amadeus-audio.co.uk
www.ypsilonelectronics.com



Pro-Ject RPM-10.1

AS IF BY EVOLUTION... A NEW VERSION OF A HIGH END TT

Pitched at £2000, this revised turntable package from Pro-Ject is fully described as the 'RPM-10.1 Evolution/Ground It Deluxe 3'. The 13.5kg Deluxe version of Pro-Ject's Ground It equipment base is finished in a piano-lacquered dark grey and is lifted on four adjustable 'magnet supported' feet.

Atop this sits the turntable chassis with its stainless steel/ceramic bearing assembly and substantial acrylic platter, motor housing and 10cc Evolution tonearm. The latter includes a carbon-fibre armtube and several sorbothane-damped counterweights designed to match different cartridges weighing between 4-6g,

5-8g, 6-10g and 8-14g.

All this is more than a mere cosmetic revision, *HFN* was told, as the new deck has been developed with an intensive programme of listening and lab tests, the latter proprietary to Pro-Ject Audio Systems.

Henley Designs,
01235 511166
www.henleydesigns.co.uk
www.project-audio.com



Linn Majik DS-I

COMPACT, ALL-IN-ONE DIGITAL STREAMER ARRIVES

Having ceased manufacturing its disc players [see 'Linn abandons CD' *HFN*, Jan '10] Linn has beefed-up its range of digital streaming music products with the new Majik DS-I. This latest member of the DS family combines six digital and five analogue inputs with a 90W/4ohm stereo Linn Chakra amplifier. Joining the Sneaky Music DS, this is also a fully-integrated solution and it's available for £2550 or £3465 with the Majik 109 bookshelf loudspeakers.

Moreover, and in common with Linn's costlier DS 'preamps', the Majik DS-I is fully compatible with UPnP media servers over its Ethernet network, enabling the streaming and playback of FLAC, ALAC, WAV, AIFF, AAC and MP3 audio files. Bit depths from 16-24bit are supported along with sample rates up to 192kHz, ensuring the diminutive Majik DS-I will handle everything up to and including Linn's DRM-free Studio Master downloads.

Linn Products Ltd, 0141 307 7777
www.linn.co.uk



Canton's UK reprise

RANGE-TOPPING SPEAKERS NOW AVAILABLE

Audiophiles with long memories will recall the luxuriously appointed Canton speakers once available in the UK through the 1980s. Now, courtesy of Sonos distributors Computers Unlimited, the flagship models of this iconic German brand have returned to these shores.

Its Reference range includes five models extending from the £18k Model 1.2 to the relatively affordable £2.3k standmount Model 9.2. Supplementing this line-up is the new Chrono SL series, including the SL580 floorstander pictured opposite, which employs the brand's proven downward-firing bass port technology.

Canton Elektronik GMBH/Computers Unlimited, 020 8358 9593; www.canton.de; www.ukcanton.com



Restored Pulse

MAJOR UPGRADE TO MONOPULSE MODEL 62S

Conceived to be more than simply a 'higher power version' of its £895 Model 32S, Monopulse's taller Model 62S has witnessed some key upgrades without inflating its £1195 price tag. The top-end frequency response is now said to extend to 30kHz while the load impedance is eased, dipping to a minimum of 8ohm across the entire bandwidth. This, claims Monopulse, is all in aid of furthering the speaker's compatibility with lower-powered valve amplifiers. On the other hand, the Model 62S now enjoys a higher 300W maximum power handling, ensuring it's just as suitable for use with substantial solid-state amps. Cake all round...

Monopulse, 07785 558238
www.monopulse.co.uk



HI-FI NEWS' NUGGETS

RUSS ANDREWS SUPERKORD

Nearly 25 years after the launch of its first 'audiophile mains cable' the PowerKord, RA Accessories has announced its successor, the SuperKord Classic-SD. Available in 1m lengths for £350, this cable incorporates 'SawyersDisc Technology' by way of enhancing its rejection of RF interference.
www.russandrews.com

SONY MONOLITH

Three 'Monolithic Design' concept Blu-ray players have been launched by Sony, including a top model, the BDP-S770, that is ready for Blu-ray 3D playback once discs are launched in the summer. This and the BDP-S570 have Wi-Fi built in while the budget BDP-S370 is 'wireless LAN-ready' provided you've invested in an appropriate adaptor. All three BD-Live models offer two channel analogue output only. **www.sony.eu**

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HI-FI WORLD

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"The whole auditioning process took about 30 seconds. Play a piece of music on GII Mini Sub. Play it again on Aquarius and wonder why you were so attached to the GII Mini Sub." "Very highly recommended"

HI-FI PLUS. ISSUE 68,



SIRIUS



ACCESSORIES



ORION



VISION



SIGMAS



TITAN

The REL of Gibraltar

G SERIES OF STACKABLE SUBS INCLUDES 700W CLASS D AMPS

First seen and heard in a stereo stack, three subs high at CES earlier this year, REL's new Gibraltar series of 'Sub-Bass Systems' has been conceived to satisfy both home cinema and two-channel music fans. The G-Series cabinets are sealed, rather than ported, and play host to substantial Class D amplification.

A massive 700W serves for the 48kg G1 flagship which also features a custom-made 12in long-throw carbon-fibre woofer. The Gibraltar series is also distinguished by its sophisticated high-pass crossover

adjustment, facilitated by remote control and, with its separate high level and 0.1 channel line level inputs, allows for seamless integration with main channel speakers.

REL Acoustics Ltd,
01656 768 777
www.rel.net



Hi-rez vinyl launched

LASER-CUTTING TECHNOLOGY APPLIED TO LP PRODUCTION

The significant upswing in vinyl sales and particularly in heavyweight 180-200g pressings has inspired a new breed of cutting technology as Neumann heads are replaced with – you guessed it – computer-guided lasers. In an effort to further improve the accuracy of lacquers and stampers, to optimise the vari-

groove 'packing' and, crucially, sidestep the limitations of mechanical groove cutting, LazerLPSolutions Ltd has announced its contact-less Laser Lathe for LP production.

The technology, which relies on the services of a 'Fourier-Optimised Oxygen Laser', makes multiple passes over the lacquer building up the groove profile from its narrowest cross-section at the bottom to its widest at the top surface of the groove wall. Spring-back effects in the lacquer are eliminated while identical copies are easy to reel off when new stampers are required.

Could this take the vinyl LP to new heights? Look out for reviews of the first pressings very soon...

LazerLPSolutions Ltd
0845 1231231
www.lazerlp.de



Full HD NAD Masters

NEW BLU-RAY PLAYER AND FULL HD AV PREAMP FROM NAD

NAD's Master Series of top-end hi-fi separates has just been swollen by the introduction of its £1900 M56 Blu-ray player and partnering £4000 M15HD Full HD AV processor (pictured below). Both the player and processor support losslessly-packed Dolby and DTS HD audio formats and both offer 7.1 analogue outputs.

While the M56 offers comprehensive on-board video processing plus support for BD Live functionality, the M15HD

offers more powerful audio processing, including flexible bass management with independent crossover points for front, centre and surround channels. The analogue outputs are driven via four stereo 24-bit/192kHz DACs while, in addition to conventional S/PDIF digital inputs, the M15HD is also fitted with four HDMI v1.3 repeater connections.

Armour Home Electronics,
01279 501111
www.nadelectronics.com



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Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

- | | |
|------------------|---|
| 13-14 MAR | Prague Hi-Fi Show
www.high-end-praha.cz/eng |
| 6-9 MAY | High End 2010, Munich, Germany
www.highendsociety.de |
| 20-23 MAY | Palm Expo 2010, China International Exhibition Centre, Beijing, China
www.eventful.com/beijing/events/palm-expo-2010 |

'THE' Show: Las Vegas

Words and Pictures: Ken Kessler



Now the *de facto* repository for freaky gear, THE (The High End) Show is something of a must-see in the manner of a train wreck. Two things, though, prevent even cynics such as I from writing it off, the first being that there's no excuse to avoid it: THE Show has moved from the toilet motel it was held in, to the Flamingo Hotel on the Strip – not far from CES' high-end presence at the upmarket Venetian.

The second reason never to miss it is that, invariably, a few A-list

brands will be there; this year, it provided the opportunity to hear darTZeel's new 500W monoblocks, the latest digital preamp from Benchmark and all-new Magnepans.

Occupying a basement room for the vinyl – and all the usual suspects were there with new releases we'll be reviewing in the coming months – and a single floor for the hardware, THE Show offered enough new product to justify an afternoon visit. Coolest surprise? An exhibitor rebuilding Garrards!



Sonist launched the Recital 3 (the narrower of the two speakers seen here), with 6in woofer and ribbon tweeter. The enclosure stands 40in tall, with a footprint of 8.25x12in; the larger Concerto 3 is positioned next to it. www.sonist.com.



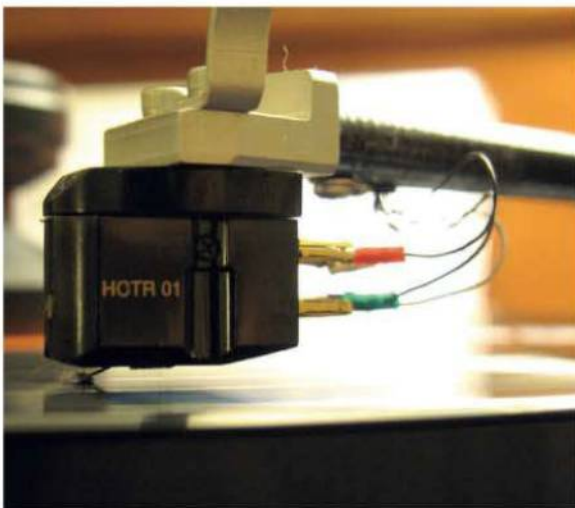
Benchmark has enhanced everyone's favourite pint-sized DAC/preamp to feature full remote control. The DAC1 HDR has balanced and RCA analogue outputs, RCA analogue inputs and five digital inputs. www.benchmarkmedia.com.



Kodo Audio works miracles with old Garrards. This is the most beautiful 301 conversion I've ever seen! Complementing it is a Wheaton Tri-planar tonearm. A second modified Garrard was also seen with a completely different plinth. info@kodoaudio.com.



Haniwa, part of the Kubotek group, showed its HSP2H06 compact two-way horn featuring a 7in woofer and 2in compression driver tweeter. The company says the design is its proprietary version of the classic Tractrix horn shape 'ideal for reproducing the sharp transient waveform which defines the tone of musical instruments'. Cute, and visually reminiscent of certain stumpy little blobs of UK origin of some years ago. www.haniwaaudio.com.



Haniwa also showed its HCTR01 MC cartridge with boron cantilever and 'super low impedance for the smallest phase shift'. Specs include a coil impedance of only 0.8ohm, inductance of 1.3μH (1kHz) and output of 0.35mV. www.haniwaaudio.com.

From Denmark came the elegant and clever products of Holm Acoustics, a full range including the DSPre 1, which accepts eight digital sources including USB and two stereo analogue sources, operating up to 192kHz, with three analogue outputs. Features include various filters and EQ settings as well as onboard crossovers. Matching it are the CD1 transport with buffer stage to 'pre-read' data, and the AMP 1 – a 100W amplifier with multichannel operation, especially suitable for bi-amping or tri-amping. www.holmacoustics.com.



Audio Note Japan – not to be confused with the UK operation – showed the 4-way Field Coil Speaker System, a huge floorstander featuring drivers with a bespoke magnetic system said to deal with back EMF and magnetic flux in a more controlled manner than speakers employing conventional magnets. Sound was robust, fast and vivid, in the manner of the best Japanese horn systems. www.audionote.co.jp.



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Jason Kennedy, Hi-Fi Choice, October 2009



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www.journal-plaza.net & www.freedowns.net



The Matsumoto MLC XSEED is a floorstander featuring a single driver – a popular form at THE Show. In this case, it's a Feastrex 5in full range unit with a claimed 16ohm impedance and 95dB sensitivity. The 1320mm-tall cabinet is finished in Urushi lacquer. www.sibatech.co.jp.



Shuhgetsu's solid-state Abis range consists of the C-120 preamp at 360x193x332mm (whd) with separate PS-120 power supply, and the matching P-1120 monoblock power amps shown here, each of which measures 240x195x510mm (whd). The preamp accepts phono, balanced line and three single-ended line sources, and the company favours balanced operation. Meanwhile, each monoblock offers a claimed power output of 120W/8ohm and houses a regulated power supply. The range employs patented technology to defeat what it calls the effects of 'negative resistance'. As for that fascia, it's 'acrylic plastic with laser processed art'. www.sibatech.co.jp.



Valve lovers will enjoy Herron Audio's VTSP-3 preamplifier, which is positively loaded with features beyond the basics, including two front-panel adjustable gain stages for system matching, volume display indicating 0-100, display brightness control, polarity inversion, a stereo/mono switch (fast disappearing elsewhere...), unity gain pass-through and more. Basic spec includes six inputs and two main outputs. www.herronaudio.com.



The Evanui Prima is a 1m-tall speaker made from layers of oiled walnut. On top is an anodised duralumin head housing a 3in Floating Diaphragm Mechanism driver. It sports dual concentric voice coils. www.vivaudiolab.com.



Magnepan's Magneplanar MG1.7 (£1250/pair) replaces the MG1.6, Maggie's hugely successful model just above entry-level. Despite familiar looks (though a new aluminum trim on the 1.7 is a departure from the traditional styling) the 2010 model drew both eyes and ears, filling the room with sound as only Maggies can. Adding to its value is a quasi-ribbon supertweeter, so the MG1.7 qualifies as a three-way quasi-ribbon. www.magnepan.com.



DarZeel turned up with the production version of the exquisite NHB-458 monoblock (£85,000 pair). Ratings are said to be 500W/8ohm, 800W/4ohm and a full kilowatt into 2ohm. It's so beautifully formed and finished that you'll learn to live with the grotesque colour, if not necessarily the five-figure price tag. www.darZeel.com



Californian speaker maker Teresonic's Ingenium Silver (from £6250) is a Lowther DX3-based floorstander with a claimed 101.5dB sensitivity; the unit stands 73in tall! Next to it is the wee Magus (from £2440), also with a Lowther driver, the 5in silver-coil DX55 said to offer 98dB sensitivity. Its enclosure measures a mere 15x12x9in. Both models are built by hand, feature gold-plated speaker terminals and, according to the company, are offered with owners of SET amps in mind. www.teresonic.com.



Playback Designs' MPS-5 (£9400) employs a modified Esoteric transport mechanism to create a superb CD/SACD player. It can be connected directly to a PC via a USB interface and recognises any source (PC, iPod, etc). www.playbackdesigns.com.



Mactone's XX-3000 is a covetable all-tube preamp from Japan with superb construction, exclusive, bespoke components and a complement of six 12BH7a valves. It addresses five line sources accessed via a rotary on the front panel, along with a selector for two tape sources, balance and volume. www.sibatech.co.jp.

Next month

Steve Harris reports from
The Bristol Sound & Vision Show



"Truly a Quad for the 21st Century, and in a more convenient package than you can imagine, it's a triumph" – Ken Kessler, Hi Fi News



A 21st century re-creation of the original 1953 Quad II amplifier by Peter Walker.

Built in accordance with his philosophy of cathode loading onto the output stage to ensure that sound reproduction delivers the same wealth of detail and exquisite tone as the original mono power amplifier – now, for the first time, as an integrated stereo design.

QUAD II *Classic Integrated*

IAG House, Sovereign Court Ermine, Business Park Huntingdon, Cambridgeshire,
PE29 6XU, Tel 01480 447700, Fax 01480 431767, www.quad-hifi.co.uk

www.journal-plaza.net & www.freedowns.net

QUAD

A brief history of valves...

Robert Harris shines a light on the dark art of tube amp technology

Since the 1990s there has been a real resurgence in valve amplification. Yet for many that grew up with plain looking transistor devices, tubes are often viewed as an exotic technology. This need not be the case. After all, the very first valve was based on a 'light bulb'.

Invented in 1904 by Fleming, the 'oscillating valve' comprised a diode (two element) rectifier based on the two-element light bulb built by Edison in 1883 to demonstrate thermionic emission (the transfer of electrons from one element to another). A heated cathode emits electrons that are attracted to a positively charged anode.

Two years later American inventor Lee De Forest came up with the triode. In an attempt to circumvent the Fleming patent, De Forest added a third element, called the grid. If a signal is applied to the grid it modulates the electron flow to the anode in accordance with the signal. This makes amplification possible. Although it's true that transformers amplify signals, triode valves can be considered to be the first successful electronic amplifying technology.

VACUUM PACKED

The earliest valves were not enclosed in a complete vacuum since the role of air particles was not fully understood. These 'soft valves' would thus burn out quickly. It was around 1914 that long-life hard vacuum valves appeared in the US. Huge numbers of hard vacuum French R triodes were used for communication during the First World War. It was at that time that disagreements between the American government and Marconi in the US – which owned many radio patents – led the US authorities to take control of radio technology away from foreign interests. This was believed to be crucial militarily so RCA (Radio Corporation of America) was set up to obtain assets and patents to control radio development and valve production.



ABOVE: A Mazda AC2/Pen indirect-heated power pentode – the improved version of the AC/Pen, an innovative 1930s industry standard that gave enough power at a claimed 4W to be used in radios with better sounding moving-coil speakers

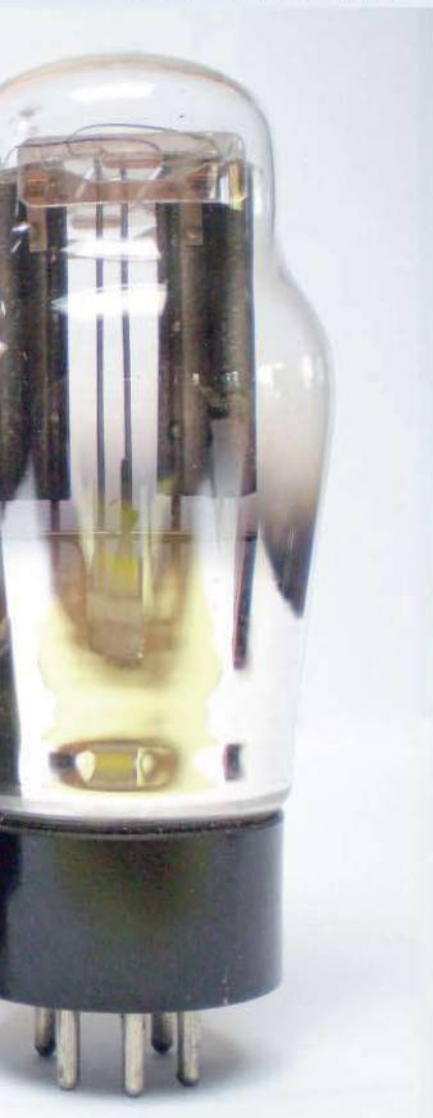
Perhaps the valve manufacturer of greatest renown is Mullard, which was founded in the UK in 1920. Commercial interest in radio increased and voice-based radio stations appeared in the early 1920s in many countries. Valves like the RCA 01A and Mullard ORA (both released in 1922) were increasingly used in radio design and played a major role in what can be considered the second revolution in mass communication after print.

Valves continued to improve greatly in the 1920s. More specialised triode valves for commercial use were developed in

the later years of that decade. Some offered greater output power while others were more suited to the amplification of small signals (eg, the indirect-heated 27 valve).

Direct-heated valves, where the initial cathode element heats itself, were the norm until the start of the 1930s. Indirect-heated valves use a separate heating element to power the cathode. This resulted in lower noise levels, which is advantageous – especially for valves dealing with weak signals. As the decade progressed, new valve types were introduced. The four-element small signal tetrode added a screen

BELOW: 1930s Mullards all round! EF39 Pentode (left) – an RF pentode for RF/IF amplification; PM24A (centre) – direct-heated output Pentode for audio use; AZ31 (right) – a rectifier for power-supplies



grid to limit interaction between the grid and anode while the five-element pentode, which appeared later, added a suppressor grid to better guide electrons to the anode.

The oldest tubes resurrected for use in high quality amplification today are the PX-4 from 1928 and the 45, first released in 1929.

Sound reproduction also improved considerably in the '20s. Pioneering audio engineers Rice and Kellogg set down many principles of audio reproduction in 1925 and greatly enhanced the quality of speakers by improving moving-coil driver technology. Amplifiers were



needed for new tasks and firms like Western Electric took important steps in making linear amps a reality.

In 1924 electronic sound recordings began appearing on disc while the arrival of 'Talkies' (films with audible dialogue) meant powerful PA systems were needed to fill cinemas with sound. Even very large amps could only produce a few watts, so power-efficient speakers were essential.

SIMPLY DOES IT

Single-ended circuits are the oldest and simplest amplifier topology. They use just one output valve to power a speaker. Push-pull amplifiers use two valves operating at opposite sides of the signal cycle. They operate in either Class A, Class B or Class AB, depending on how they are configured. Due to their nature, single-ended circuits only operate in Class A. The primary innovations in push-pull design occurred in the 1910s and '20s. Single-ended and Class A push-pull circuits have differing advantages and disadvantages but represent the best modes of operation in terms of sound quality. In Class B and A/B, the output valves switch on and off according to the signal cycle. For a given circuit, output power increases but distortion worsens, and the switching action may cause an unpleasant audible distortion.

By the 1930s valve design had reached a certain maturity. More powerful direct-heated output triodes were introduced, eg the

2A3 (1932) and 300B (1938), which many listeners prefer to later power valves. These became popular for use in high-end amplifiers in the '90s due to the extremely fine sound quality they can achieve.

Newer small signal valves (now indirect-heated as standard) were greatly reduced in size. For example, the 6J5 triode introduced in 1935, ancestor of the popular 6SN7 double triode from 1941 (essentially two 6J5s in the same glass envelope),

stood just 2in tall. Meanwhile, power pentodes, such as the AC/Pen from 1930, provided a good deal of volume when used in radios without

manufacturers having to incur the extra expense of using triodes.

There were difficulties in using tetrodes as power valves until the invention of the beam tetrode, which improved electron guidance. The earliest beam tetrode power tubes are the indirect-heated 6L6 (KT66) from 1936 and the 6V6 (1937) – a lower power valve often used in radios. Both are still popular.

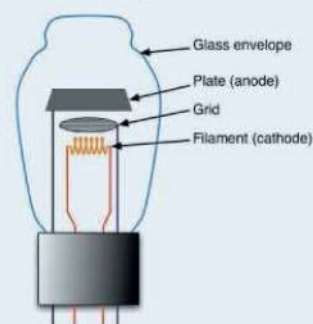
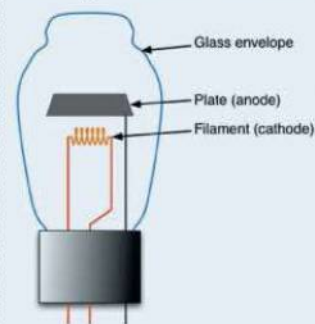
Public interest in high quality sound grew in the 1930s and

ABOVE LEFT: Thomas Alva Edison, pictured in 1887. It was his two-element light bulb on which the very first valve was based

ABOVE RIGHT: Lee De Forest, whose attempts to circumvent Fleming's patent on the two-element valve saw a third element added in the form of 'the grid'. The triode was born – a valve that could be used for amplification

BELOW: Cross section of two-element (diode) and triode valves showing position of third element (Grid)

'A grid makes amplification possible'



INVESTIGATION

designers were aware of this. Radiograms with a hi-fi theme appeared but there wasn't really a hi-fi industry at this time. The triode remained the primary power valve type, although the invention of negative feedback in 1927 by Harold Black would change this as his ideas were explored in the 1940s and '50s.

Pentode and beam tetrode power valves produce higher power levels but have a high output impedance, making them less suitable for direct-coupling to speakers. They also produce several times more distortion. This includes a proportionally higher level of anharmonic or odd-order distortion harmonics, less pleasing to the ear. Triodes, on the other hand, are the most intrinsically linear (least distorting) designs and their primarily even-order distortion patterns are considered to be less subjectively invasive.

'Small signal valves became even smaller'

THE '30S EVOLUTION

Amplifier design continued to improve in the 1930s. In fact it was thought to have reached a point where sound quality could not improve significantly, a judgement that would be dismissed in the 1950s when higher power pentode-based push-pull amplifiers, tempered with moderate levels of negative feedback, would become a dominant force.

Nevertheless, certain amplifiers built in the 1930s, such as the cinema amplifiers from Western Electric that use 300B triode valves

in single-ended output stages, are still very highly regarded in hi-fi circles today. Single-ended output stages fell out of favour after the 1930s because the more popular Class A push-pull circuits had the benefit of cancelling out even-order distortions. Yet the merits of these old amps began to be rediscovered in the 1970s, and since the '90s

single-ended output stages have been utilised in many new valve amplifiers.

In the 1940s valves were used for a variety of

advanced applications, such as in radar and early digital computers, which reputedly helped enhance the reliability of subsequent valve designs. Direct-heated valves became less common.

The few triode power tubes introduced in the '40s offered low impedances but were designed for voltage regulation rather than as an alternative to tetrodes/pentodes.

Meanwhile, small signal valves became smaller still and required less energy to power. The ubiquitous '12A...7' double triode series (eg the 12AT7/ECC81, 12AU7/ECC82

ABOVE: A rebuilt Williamson amp sporting four 6J5 triodes, a 53KU rectifier and a pair of KT66s

BELOW: A QP25 valve by Mazda – a late 1930s quiescent push-pull double pentode designed for efficient use in battery-powered radios

and 12AX7/ECC83) was introduced, beginning in 1946 and onwards.

AUDIO IN MIND

Some amplifiers manufactured after the Second World War were designed with audio fidelity in mind. Examples are the Leak Type 15 (1945), TL/12 (1948), and the famed Williamson design (1947). Often these amplifiers use tetrode power valves connected as triodes, and operate in Class A push-pull – the most linear operating mode.

For the first time moderate levels of negative feedback were used to reduce measured distortion levels,

famously to 0.1% with Leak amps [but see Lab report *HFN*, March '10]. Feedback sends an error signal derived from the amp's output back through its input, linearising its performance. Of course, since the 1970s many enthusiasts have claimed that feedback degrades sound quality, especially when high levels are used.

When operating normally, power tetrodes and pentodes offer approximately twice the output of triodes in a similar circuit. Yet some inherent qualities make them less suitable for high-fidelity applications unless feedback is applied to reduce output impedance and distortion. In

turn, where output coupling transformers are employed feedback is typically moderated to ensure optimum amplifier stability.

CATHODE COUPLING

Further innovations in the application of feedback occurred in the late 1940s. Quad and McIntosh used cathode coupling, where the cathode is connected to an additional winding on the output transformer (distinct to the



LEFT: Four Brimar CV4003 valves; CV valves don't often have brand names printed on them as they are military-coded



anode winding) which introduces feedback. The famous Ultra Linear circuit, where a connection from an output transformer sends feedback at an optimised level to the screen grid in tetrodes/pentodes, reduces distortion. With increasing levels of feedback being applied to amplifier circuits, tetrode and pentode power valves became predominant and during the 1950s, the production of many power triodes ceased.

While Class AB circuits offer a higher efficiency and the promise of higher output levels than Class A circuits, they suffer an increase in overall distortion, including a proportional increase in more perceptible odd-order distortions. Firms like McIntosh obtained higher feedback levels by using better transformers, which greatly reduced the distortion of Class AB. With competition for customers, it was inevitable that similarly priced amps with twice the output had a real commercial advantage. Quoted distortion figures could be quite acceptable by using maximal amounts of feedback. Therefore Class AB was utilised increasingly.

TRANSFORMERS

As power valves produce very high output voltages and impedances they require output transformers to match speakers. Yet output



ABOVE: 12AU7 (ECC82) double triode from General Electric's 12A...7 series (left); Mullard E88CC double triode from 1958 (middle); RCA 6BJ6 pentode (right)

BELOW: Little and large – two popular 1950s power valves in the form of a GEC KT88 beam tetrode with box (left) and an EL84 output pentode



transformers degrade sound quality, are costly, difficult to design well and limit the use of feedback. Output-transformer-less (OTL) valve amps usually reverse-connect power valves in a 'cathode follower' configuration. This is very inefficient but yields a much lower output impedance, which is suitable for direct coupling to loudspeakers.

Single-ended push-pull (SEPP) OTL circuits can achieve good power but suffer from an asymmetry which limits their linearity. American electronics engineer Julius Futterman published a solution in 1954, but it could only partially balance SEPP circuits. OTLs were re-introduced in the 1980s. Designers often used low impedance pentodes rather than triodes to produce more power, but this made already poor linearity worse.

The general low impedance Circlotron circuit from 1955 has been adapted for OTLs, and it is claimed that modified Futterman OTLs reduce circuit asymmetry. However, it is still often thought that OTLs can be problematic and don't function at their best with most speaker designs.

THE CLASSICS

The majority of widely known power valves come from the latter days of valve development. The EL34 (6CA7) and EL84 (6BQ5) pentodes, introduced in 1953, are used in many hi-fi amps and the very popular Mullard designs. Two EL34s usually produce 25W (push-pull Class A), while the smaller highly popular EL84 offers around half that power. The KT88 beam tetrode, introduced in 1957, was one of the

last successful power tubes. Used together, two typically produce 40W (push-pull Class A).

In the 1950s transistors were employed with great success in early computers and portable radios. Transistors would inevitably replace valves. Tiny, low-signal Nuvistor valves appeared in the early 1960s but by the mid '60s development of most valve types had ceased under the solid-state revolution.

Valves continued to be developed for specialist applications, such as high frequency transmitters where they have advantages over transistor technology and, of course, until recently they were used in CRT TVs!

THE '70S AND ON...

Transistor amplifiers aimed at the hi-fi consumer began to appear in the early 1960s. Still in its infancy, this technology required more complex circuitry, was unreliable, less linear and not well suited to Class A operation. However, transistor amps avoided the need for costly output transformers, could accept higher feedback levels and tended to be more power efficient. By the end of the 1960s, valve amplifiers were mostly considered obsolete, even though some enthusiasts maintained that they

sounded better than transistors.

The commercial production of valve amps broadly ended at

'By the late '60s, valve amps were thought obsolete'

the turn of the '70s, although a very small number of new models aimed at the high-end user appeared subsequently. It is significant that the valve amplifiers of the '50s and '60s, such as those by Leak, Quad, Dynaco and McIntosh are still highly regarded – unlike transistor equivalents from the 1960s and '70s – even though compromises were made to achieve greater power or lower cost. Even where the valve may have bettered the transistor, it was cast aside by fashion.

Critically such amps, often discovered tucked away in attics, inspired a valve renaissance through the 1980s. As many listeners now had access to more transparent-sounding speakers, the unique qualities of valve amplification could be enjoyed by a new audience. ☺



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Devialet D-Premier (£12,000)

Premier by name, premier by nature this radical new amplifier from – until very recently – an unknown brand looks set to challenge the very best audio has to offer
Review & Lab: **Paul Miller**

Once in a generation a company will emerge, often from left-field of audio's mainstream, with a concept so original and innovative that it has the capacity to re-define the expectations of a product genre. That company is Devialet of France and its product is the D-Premier integrated amplifier, expected to cost around £12k when launched in the UK.

Embarking on this review, little was known about the nitty-gritty of the D-Premier aside from its description as an 'ADH' (Analogue/Digital Hybrid) amplifier. It was not exhibited at CES in January nor formally announced to the press, so much of what we'll discuss here is derived from very close inspection and even closer lab work, all exclusive to *Hi-Fi News*.

This is an amplifier offering direct digital inputs alongside analogue line and MM/MC phono inputs, an amplifier that fuses the very best of digital and analogue engineering to produce a highly configurable yet supremely elegant solution. The technology inside Devialet's mirrored alloy casework is breathtaking in its originality and scope. Its construction is entirely modular and completely free of wires, right up to its 4mm speaker binding posts. It may just be the finest amplifier we have ever heard. Or not heard.

FRENCH CHEEK

An unkind observer might suggest that its polished casework bears an unfortunate resemblance to a set of bathroom scales, but the single-piece alloy chassis is not simply oozing French chic, it is also

beautifully functional. As we will discover, the D-Premier operates at very high frequencies and power – only by sealing these electronics in a gap-free and near enough air-free alloy enclosure can Devialet guarantee the freedom from emissions and interference required for CE compliance and sale in the EU.

There's not even a hole to accommodate an IR eye, for the table-top remote is an RF device [see picture, below left], capable of adjusting volume, input selection, bass roll-off (in 2.1 mode) and phase inversion without line-of-sight of the D-Premier. Spin the weighted RF wheel and the Premier's display registers the volume from -97dB all the way up to +30dB, the peripheral clockface of dots turning red once the amp has reached its maximum output. The latter is a lot easier to gauge when you are employing a digital front-end because 0.0dB on the display represents maximum power. Depending on the signal level applied to its *analogue* inputs, you could reach the end stops substantially higher or lower on this numerical scale.

But even the end stops are 'buffered' in this sophisticated amplifier, for signals above 0.0dB are subject to compression up to +12dB and a form of soft-clipping thereafter up to +30dB. Without this intervention, if the volume were raised above 0.0dB and the digital music content contained peaks close to 0dBfs, the amplifier could suffer momentary but crushing levels of distortion.

THE AUDIOPHILE HUB

Levering off the rear panel, an interference fit at the top and back of the chassis, reveals a mix of connections. These may be individually configured to accommodate digital (coaxial and optical S/PDIF plus balanced AES/EBU), analogue line-level and even MM/MC phono sources. There are even a pair of HDMI input

RIGHT: A backlit LC display indicates both volume and input selection. The display changes orientation depending on whether the amp is laid flat or placed upright against a wall





and output connections to service high resolution two-channel audio from DVD and BD players.

Devialet will supply a PC/Mac application that allows full customisation of the D-Premier, from naming and configuring the sockets (input, output, digital or analogue) and even specifying the output power from 160W to 240W. The default is 165W/8ohm. You customise and store the configuration onto an SD card and simply plug it into the reader on the rear of the amp.

There are plenty of other elegant touches to hand – the display rotates according to the physical disposition of the amp, for example, while high volume settings are automatically reduced if no digital input is sensed for a period. Leave the amp for half an hour or so and it drops into a 5W standby mode. Warm-up time? Well, that's the time taken for its OS to boot – about ten seconds by my reckoning.

Our sample operated in default mode only and while the HDMI facility was not enabled, the HDMI receiver/repeater board was fitted in place [see picture, p24]. At the time of writing, Devialet still has to add the handshaking that ensures the HDMI source (Blu-ray or DVD player) sends two-channel PCM and not multichannel, Dolby or DTS encoded bitstreams...

A single set of 4mm speaker outlets are fitted but if you are to benefit from

this amplifier's fabulously low output impedance then kindly discard any notions of using scrawny cables, regardless of audiophile pretention. With this proviso in mind, if hooking-up the D-Premier is a doddle then keeping it free of fingerprints is an exercise in severe self restraint. Visitors, whether audiophile or not, will be compelled to touch that beautifully mirrored surface, so keep Devialet's monogrammed cleaning cloth to hand!

PREVENTION, NOT CURE

A glance at our technology boxouts on this and p25 suggests a deal of custom DSP overseeing the D-Premier's operation. But these powerful Analogix processors do not only calculate the PWM signal required to drive the Class D current dumpers, they also provide a measure of compensation for non-linearities in both Class D and, particularly, Class A stages. Calibrated for frequency, digital volume position and output level the heightened precision of the DAC and Class A I-to-V stages are what shape the performance of the D-Premier as a whole. If we were able to measure or listen to the Class D stage in isolation, we'd discover it was far 'rougher' sounding than the combined efforts of its ADH output [see boxout, below].

'Warm-up time?
About ten seconds
by my reckoning'

ABOVE: The 6.9kg D-Premier is fashioned from a single alloy casting – 32mm thick, gently radiused, chromed and polished to a perfect mirror finish. White gloves are supplied!

Moreover, my experiments showed Devialet has programmed the DSP with a very sophisticated protection regime. Rather than wait for an over-voltage/current or temperature condition to arise in the Class D stage (although such a failsafe is also implemented), the digital audio is continuously monitored for patterns of level and/or frequency that would over-modulate the PWM stage. Thus the protection is in part *predictive* – the D-Premier simply never allows any data

into the Class D amp that would cause it to fail. And believe me, when a beefy Class D amplifier even momentarily exceeds its safe operating

area a parasitic oscillation can see it destroyed in an instant.

SOUND OF SILENCE

How to describe the performance of this amplifier? Imagine you are sitting in a concert hall. The orchestra finishes its warm-up and the sound of individual strings and winds drift away to the vaults of the venue. The audience's coughs, splutters and rustling of programme notes diminish to a respectful hush. The lights dim and you close your eyes. Silence.

For a long moment the audience holds its collective breath for there is no lead-in groove, no tape noise or hiss of electronics to announce the first notes of this overture. Then it comes. The striking crash of cymbal and deep resonant wave of the tympani strike your body. Eyes now wide open, heart roused from its lazy rhythm you know you are witnessing a visceral, live performance. No hi-fi comes close, you think, no hi-fi can realise this spontaneous dynamic range, this vivid colour and expression of real instruments throbbing before your eyes and ears.

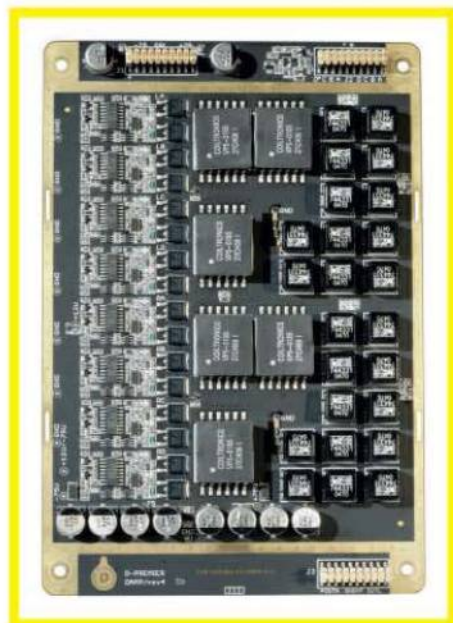
Generally speaking I would agree, but the sound of the D-Premier fed from 24-bit Studio Master quality digital files comes astonishingly close. In fact, the only time I experienced the uncanny perception of music rising from a similarly

ADH TECHNOLOGY

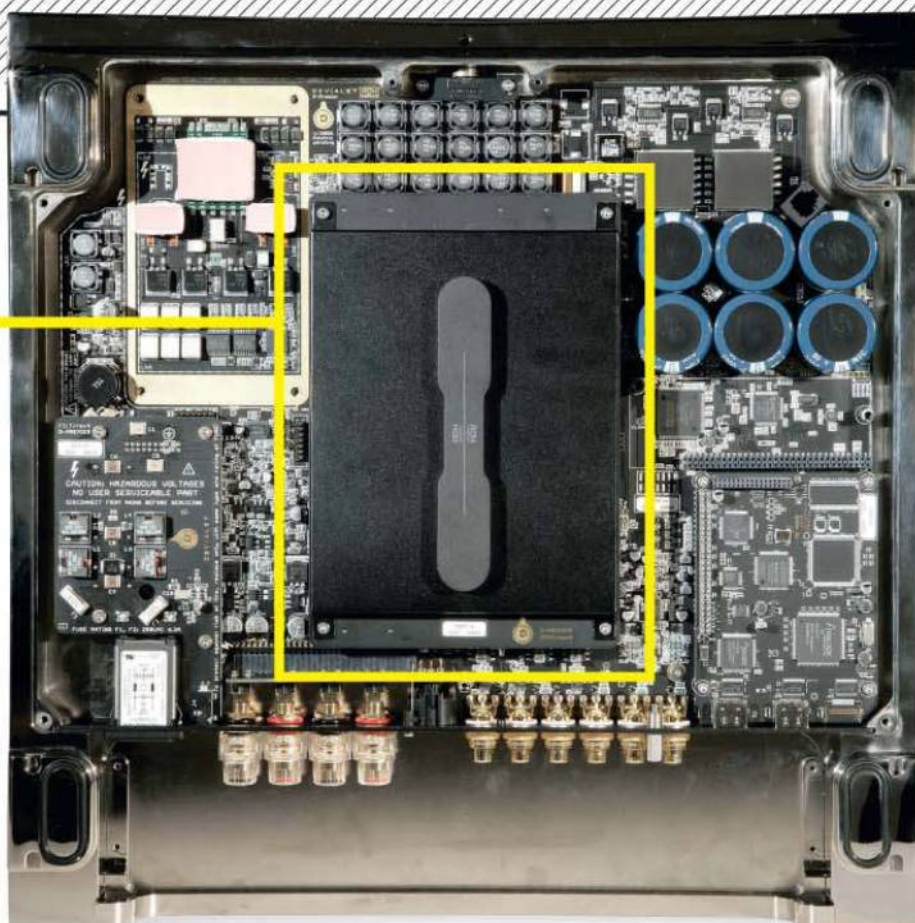
ADH – Analogue/Digital Hybrid – amplifier technology is an entirely proprietary regime that combines the services of a very low power analogue Class A amplifier with a very high power, truly digital Class D amplifier. Here's how it works: the analogue Class A amplifier is directly coupled to the speaker and defines the full voltage swing available while the digital Class D amplifier provides 99% of the current required to maintain this voltage across the speaker load. The idea is not dissimilar to Quad's 'feedforward' Class A/B Current Dumping technique applied in its 405 power amplifier some 35 years earlier [Wireless World, Dec 1975]. In both cases the Class A control amplifier (a high voltage preamp) utilises an error signal derived from the current dumpers to compensate for their non-linearities.

In practice, when we measure and listen to the Devialet, it's the performance of this very linear Class A control amp that defines both the numbers and its sound. Moreover in this French example of the art, the Class A amp also filters the triangular ripple current from its noisy digital Class D switching stage. In one step the need for an invasive LC filter – used between the modulator and speaker outputs of all other Class D amps – is avoided. Uniquely for a Class D design, the D Premier is fundamentally insensitive to variations in load between one speaker and the next, opening up a huge choice of partnering boxes for the audiophile.

AMPLIFIER



ABOVE: Devaliet's custom four-phase Class D amplifier module unhooked from inside the D-Premier. Top left (main picture) shows the exposed switchmode PSU minus its screening can; bottom right reveals the HDMI input



black background was during my time with a prototype true digital Class D amplifier in 1995, the forerunner of the TacT Millennium. At the time I likened the experience to 'stepping out into a clear road only to be knocked over by an electric car turning the corner'. But this was operating at just 16-bits and the huge swell of ultrasonic requantisation noise just outside of the audioband had yet to be dealt with.

THE NEXT GENERATION

Years later and Devaliet's D-Premier evokes very similar emotions. This time, however, the background isn't just black, it's a chasm of calm, a cool silence that stretches back beyond the obvious reaches of the stereo soundstage.

This abyssal canvas explains why I sat transfixed by an NHK presentation of the Saito Kinen Festival on Blu-ray [Berlioz's *Symphonie fantastique*, NSBS-13457]. Only now was the 24-bit dynamic range of this digital recording finally being realised, injected directly from the S/PDIF output of a Marantz UD9004 universal player [HFN, Dec '09]. The only analogue stage in the signal path a low power, Class A voltage amp guiding the output of the D-Premier...

Every performer in this substantial orchestra was revealed with the precision

and clarity of a soloist. The wistful colour of cor anglais separated from the reedier oboe, the cello playfully mocking the grander double basses while horn, trumpet and trombone soared – metallic but richly coloured, never too cool or dispassionately brassy. And the whole? This was simply superb, so rounded and harmoniously balanced you felt compelled to reach out and embrace their ranks.

I also had occasion to enjoy a two-channel rendering of Eric Clapton, Roger Taylor *et al* in *A Concert by the Lake* [ERBRD5049 Blu-ray], the Devaliet capturing the open atmosphere of this very select event with its customary

transparency. The crisp night air was palpable as Clapton and Rutherford traded some slick riffs, but this was a gentlemanly performance, the fellas clearly lacking

the gusto of their youth. Well, I never said the Devaliet was sympathetic.

In general, the very best amps are able to make your speakers melt from the room, projecting a musical performance into the space between and around them and you. There's no obvious sense of boxes in the room as the music hangs, palpable but independent. The insight this provides into the music is fantastic – when it happens.

'You know when you are witnessing a live, visceral performance'

PIERRE CALMEL

The innovative brains behind the D-Premier was insufficiently taxed at the R&D dept. of Nortel Networks. 'I started day-dreaming about designing the best amplifier ever, with the highest efficiency ever,' he says, 'and the idea of associating Class D and A amplifiers came swiftly.' The underlying technology was patented in 2004 and Devaliet SAS in Paris was on its way, Pierre assisted by another ex-Nortel colleague Mathias Moronville.

Funding and encouragement from an industrial designer (and audiophile) brought the D-Premier prototype to production from 2007 to 2010. 'It has been a real team effort' reveals Pierre, 'involving a lot of core competencies'.

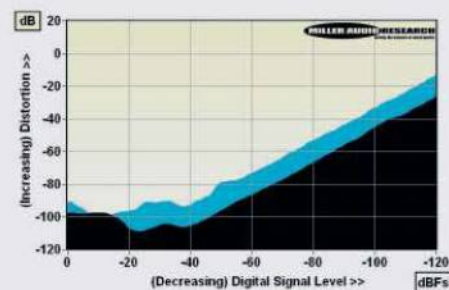


LAB REPORT (DIGITAL)

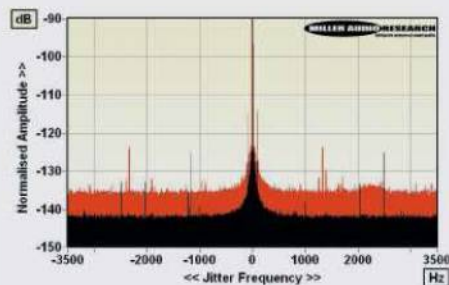
DEVIALET D-PREMIER (£12,000)

The following measurements represent the performance of the D-Premier's digital core and the graphs may be compared directly with those obtained from any CD/DVD/BD player or outboard DAC reviewed in *HFN* in the last three years. Only here the output at 0dBfs (peak digital) is not the customary 2V but a full 36.3V developing 165W/8ohm. While performance via the analogue inputs is limited by a mere 48kHz sampling, the digital inputs offer a full 0.1Hz-90kHz output bandwidth with up to 24-bit/192kHz data. Crucially, the distortion versus digital level (less than 0.005% over the top 50dB of its dynamic range) is superior to any outboard DAC measured so far while digital jitter is an almost invisible 40/50psec with 48/96kHz data at 10W/8ohm – a fabulous result aided by all clocks being transmitted in differential mode across the amp. Equally superb is the 120dB A-wtd full scale S/N ratio via the digital inputs (this is closer to 90dB re. 1W/8ohm via the analogue inputs).

Depending on the sensitivity of the speaker, the programme content and preferred listening level, the position of the D-Premier's volume control may well be shifted off the 0.0dB spot, prompting a change in (digital) distortions, particularly at higher frequencies. Unity gain occurs at volume position -22.5dB while, with a 0dBfs input, 1W/8ohm is achieved at -22.0dB. Distortion falls to just 0.00025% at 1kHz in this position, increasing to 0.012% at 40kHz with 96kHz/24-bit data. Readers are invited to view a comprehensive QC Suite test report for the D-Premier's digital input, DSP and DAC performance by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion vs. digital signal level from 0dB (165W) to -120dB (0.17nW) with 24-bit data at '0.0dB' vol. position (1kHz = black; 20kHz = blue)



ABOVE: High resolution jitter plot showing 48kHz/24-bit (black) and 96kHz/24-bit data (red) measured at 10W/8ohm output. Jitter is exceptionally low

HI-FI NEWS SPECIFICATIONS

Maximum Output Level (0dBfs)	36.3Vrms
A-wtd S/N Ratio	119.5dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0014% (165W) / 0.00056% (0.17W)
Distortion & Noise (10kHz, 0dBfs)	0.003% (165W)
Frequency resp. (192kHz/24-bit)	+0.0dB (10Hz) to -8.7dB (90kHz)
Digital jitter (48kHz/96kHz, 24-bit)	37psec / 49psec
Resolution @ -110dB	±0.2dB
Power efficiency	90% (165W)
Dimensions (WHD)	400x44.5x400mm



ABOVE: Seen from above, or mounted vertically on a wall, Devialet's port hole not only reveals its ADH technology motif but also houses a hidden Wi-Fi antenna. A riser for an extension board is already in place to accommodate streaming of hi-res audio

But the D-Premier does something else, something quite wonderful.

I returned to that tympani, to experience the shocking pulse of musical energy once again and realised that while the body of the instrument was perfectly

proportioned, the image of the bowl and taut skin was not just simply projected into the room. Instead it seemed as if the speaker itself was the instrument, as if the very walls of my substantial B&W 802s were the kettle of the drum.

The control exercised by this amplifier over any of the speakers I tried, including models as diverse as Sonus faber Minima, Magico M50 and B&W 802 floorstanders, is seemingly total. After all, it has a vanishingly low output impedance, a response flat to within 0.1Hz of DC and a power supply capable of doubling its output with each halving of speaker load impedance. The most recalcitrant of speakers are rendered utterly compliant.

DO PASS JAIL

If the performance of the D-Premier's analogue inputs are rather at the mercy of both input (source output) level and the ADC's ineffectual anti-aliasing filter [see Lab Report, p27] then its various digital inputs are certainly not.

THE DIGITAL CORE

All inputs to the D-Premier end up in the digital domain, analogue inputs via a 48kHz sampling ADC and digital inputs via 192kHz upsampling. This 24-bit/192kHz audio data is used to derive the ~300kHz PWM (Pulse Width Modulated) signal for the Class D amp. This describes the signal amplitude by the relative 'width' of pulses in the chain, the underlying audio signal being recovered by filtering through the highly linear Class A amp [see ADH boxout, p23].

The Class A amp, meanwhile, is also driven by this digital data after volume and other correction is applied. Devialet uses pairs of Burr-Brown PCM1792 DACs in a proprietary 'current reflector' configuration that encompasses both I-to-V conversion and gain for the bias-corrected Class A output stage.

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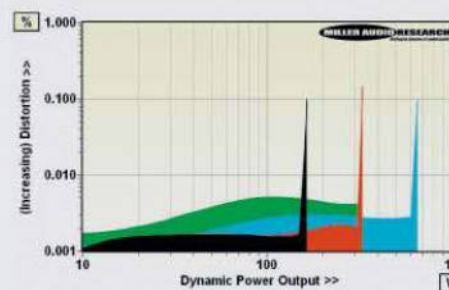
LAB REPORT (ANALOGUE)

DEVIALET D-PREMIER (£12,000)

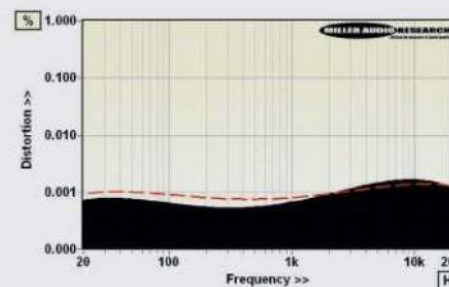
Via its analogue inputs, the gain of this amplifier is unusually high at +52.5dB (+30dB volume setting) or +22.5dB at the 0.0dB setting. This allows it to accommodate MM pickups via the phono input. Via its optical, coaxial or AES/EBU digital inputs, a full-scale 0dBFS digital signal yields 165W/8ohm and 330W/4ohm at the 0.0dB volume setting – the point at which Devialet's sophisticated digital compression is invoked. Because the output is digitally defined, and the custom power supply so rigidly regulated, there is no difference in either continuous or dynamic power output, amounting to 165W, 330W and 650W into 8, 4 and 2ohm loads [see Graph 1, below]. This is as close to the perfect 3dB doubling of power as I have ever measured.

Neither is there the typical increase in distortion with decreasing load impedance seen with other amplifiers, a tolerance of speaker loads also indicated by the fabulously low 0.006ohm output impedance that holds true not just through the bass but right across its bandwidth. Distortion varies slightly with both the digital volume setting and frequency but over 1-150W and from 20Hz-20kHz it settles around 0.001% [see Graph 2, below]. Once again this consistency is remarkable.

Less remarkable is the input ADC which samples all analogue sources at 48kHz, limiting the response to -3dB/20kHz, channel balance to 0.1dB and crosstalk to -80dB/20kHz. Aliasing images are also poorly suppressed (-3.5dB re. 20kHz). All such issues are avoided via the digital inputs [see Lab Report, p25]. Readers are invited to view comprehensive QC Suite test reports for Devialet's D-Premier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads



ABOVE: Distortion vs. frequency at 10W/8ohm (black = left, red = right channel) showing exceptionally consistent performance across the audio range

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	165W / 330W
Dynamic power (<1% THD, 8/4/2/1ohm)	165W / 330W / 650W / 325W
Output impedance (20Hz-20kHz)	0.005-0.006ohm
Frequency response (20Hz-20kHz)	-0.0dB to -2.9dB (see Lab p25)
Input sensitivity (for 0dBW/165W)	6.7mV / 86.2mV
A-wtd S/N ratio (re. 0dBW/165W)	91.3dB / 113.7dB
Distortion (20Hz-20kHz)	0.00075-0.0013%
Power consumption (Idle/Rated o/p)	27W/450W (5W Standby)
Dimensions (WHD)	400x44.5x400mm



ABOVE: Devialet has equipped its amp with an HDMI v1.3 input and output, two Toslink optical digital inputs (up to 24-bit/192kHz) and a balanced AES/EBU digital input. The MM/MC phono and line input, two coaxial digital inputs/outputs (up to 24-bit/192kHz) may be configured to use any of the six visible RCA sockets.

Frankly I am inclined to treat the analogue inputs as a 'get out of jail' feature for legacy gear including analogue tuners, reel-to-reel or pre-digital out CD hardware. Otherwise you're necessarily going to use the digital output of your disc player. But that's just the start. In practice, the D-Premier is manna from heaven for those enthusiasts already tempted by music on DVD/DVD-A or Blu-ray or, indeed, the high resolution music downloads offered by Linn, Naim, Chesky and others. And boy, does the step-up from 16-bit CD to 24-bit DVD-A, BD, FLAC or WAV formats at 48kHz to 192kHz make a difference!

RESOLUTION EVOLUTION

There's a nifty DVD-A from The Resolution Project, a collaboration between DPA microphones, Dolby, Minnetonka software and others, that includes a live recording of the Mary Louise Knutson Trio in a small church presented in a variety of formats including 16-bit/44.1kHz (CD quality) up to the holy grail of 24-bit/192kHz – the native internal resolution of the D-Premier. The CD resolution still sounded fabulous, the delicate brushwork of percussion and Mary's dexterous action over the keyboards all lifted by the dark, dark backdrop afforded by this amplifier, free of any hint of hardness or digital hash. It sounded as pure as cool, crystal-clear water.

Switch to the 24-bit/192kHz format and this dark floor just falls completely away, revealing the collective intake of breath from the audience the instant before Mary begins her countdown and Phil Hey's bass drum announces the trio. The resonant depth of both the drum and acoustic bass just keeps on going, drawing out low frequencies I didn't know existed from the substantial B&W 802s, as the percussive impact of ivory mingles with the chink of ice in a glass, reflected off the brick walls of this lively but intimate church venue. The

atmosphere, detail, the harmonious integration of the performers and, above all, the palpable *realism* of the piece was captivating.

DIGITAL STREAMING

I cherished the time spent listening to the highest resolution (Studio Master quality) digital files stored on a 4TB QNAP NAS server, navigated by PC and rendered via the digital output of a Linn DS player. As CD begins to lose its lustre for committed two-channel audiophiles, there's an inclination to gravitate towards the luxuriant sound of top-notch vinyl and/or the sensational resolution afforded by 24-bit DRM-free audio downloads.

Certainly I've never heard a plain vanilla CD player offer the performance of a Linn DS delivering 24-bit/96kHz digital audio through the Devialet D-Premier. The sound of Claire Martin's voice caressing the gentle tune that is 'Shadowville' [*Perfect Alibi*, 24-bit/96kHz FLAC] sounded truly alluring, her presence as solid, the intonation as velvety and emotive as if she really were standing in front of those B&Ws. For those so inclined, this is the future of exquisite music making in the home, short of hiring Ms Martin to perform for an evening. ☺

HI-FI NEWS VERDICT

If I could award Devialet two badges then I would, because the D-Premier is both this Editor's choice and *the* Outstanding amplifier thus far of the new Millennium. The taut precision of its performance will not supplant the gloriously rich sound sought by tube-loving audiophiles, and that's just fine. But for enthusiasts running very high resolution digital front-ends, the D Premier is Hobson's binary choice.

Sound Quality: 90%



Green Mountain Audio Eos (£4400)

Colorado springs a speaker whose technology and form strike more than one chord with our reviewer
Review & Lab: **Keith Howard**

The famous Bauhaus diktat 'form follows function' was an aesthetic imperative rather than an engineering philosophy, and a good job too, because for structural engineers in particular the concept was already old hat. All those Martello towers littering England's south coast, for instance, are not round in plan view on a whim: it's because castle builders, centuries earlier, had discovered that round towers better resisted artillery bombardment than those with corners.

It's natural to suppose that modern engineers would never do anything so crass as to make something

fundamentally the wrong shape, but don't be so sure. Most loudspeaker manufacturers have done it, continue to do it, and give every sign of proposing

to do it in perpetuity. I'm talking of the rectangular box cabinet, which despite its ubiquity is the worst possible form for a loudspeaker enclosure, both structurally and acoustically.

I've been a voice in the wilderness on this subject for almost 30 years, so you can appreciate what a heartening change it is to have in front of me a speaker that eschews not only the conventional box cabinet but also the materials from which it is traditionally constructed, and the predictable – and oh so dull – wood veneer finish. Until the day before the pair of Green Mountain Audio Eos arrived at my door, though, I'd never heard of the US company that makes them – even though it has been in business for 22 years.

Based in Colorado Springs and founded by designer Roy Johnson, whose CV includes a spell as recording engineer for the Colorado Springs Symphony Orchestra, Green Mountain Audio

launched the Eos and Eos HD in 2008, the HD being a 'breathed on' version with enhanced crossover and Marigo Labs' CopperMatrix internal wiring. What both models share is a moulded Q-Stone cabinet of marble-loaded resin, a first-order and hence linear-phase crossover [see box-out] with Zobel network compensation of driver inductance, and a unique tweeter arrangement whereby the entire tweeter module atop the cabinet can be slid back and forth in a groove in order to time-align it accurately with the 170mm Aura Sound bass-mid driver. The

tweeter is a soft dome unit from SEAS that lacks the ultrasonic resonance of metal dome designs but provides useful output to beyond 30kHz.

THE EARSTICK

It's this novel tweeter provision that gives rise to one of the stranger audio accessories I've encountered, called the EarStick. The idea is that you mount this on a camera tripod and align the tip with the entrance to each ear canal in turn. With a helper you then measure the distance to the centre of the thin foam cover of the nearer speaker's bass-mid unit, add three inches, and adjust the position of the tweeter – it's locked in place via a thumbwheel – so that the centre of its foam cover is that distance from the end of the EarStick. *Voila!* The two drivers are now time-aligned.

Take my word for it: this adjustment is well worth making. I hate to use the awful old cliché 'snaps into focus' but that's exactly what happens to the Eos's sound when the tweeter position is optimised. It's quite remarkable, and the most convincing demonstration of the importance of accurate driver time alignment that I've ever experienced.

'I've been a voice in the wilderness on this subject for almost 30 years'



ABOVE: Both drive units are covered by a thin foam 'grille' which are pushed into a circular groove within the cabinet moulding. A metal trim ring is then added to disguise the groove

What the moulded cabinet does, apart from making the Eos surprisingly heavy for such a compact design, at a little over 20kg apiece, is afford the opportunity to shape the cabinet for better acoustic and structural performance. The upper section of the enclosure resembles a cylinder, which Don Barlow demonstrated years ago is one of the favoured structural forms for a speaker cabinet because of its inherent stiffness. And the transition from the edge of the bass-mid driver to this cylindrical portion of the cabinet is curved so as to avoid the sudden change in acoustic



caused by typical passive crossovers (ie, up to fourth order) is inaudible. Well, I demur, and not just because I tend to like the sound of speakers with first-order crossovers. I've experimented in this area over a number of years and have no doubt that crossover phase distortion has clear audible consequences. A significant part of the Eos's fine, spacious imaging unquestionably owes itself to that simple crossover.

It has to be said, though, that the Eos's rare clarity is also in part due to a less than scrupulously neutral tonal balance.

There's a lack of midrange warmth here, although curiously it's more apparent on some programme material than others. For instance, I didn't feel that Ella Fitzgerald's masterly 'Reach For Tomorrow' [Verve 839 838-2] – a track that's very sensitive to a speaker's ability to reveal vocal nuance – was tonally cool or upper-mid forward, but other items clearly were. One such was Diana Krall's 'Narrow Daylight' (24/96 version from Dual Disc, Verve 0602498648247), where

both the vocal and acoustic guitar break had a little more edge to them than they should.

This is part of the Eos's makeup, and you either accept it or you don't. My tolerance of it was due in no small part, I think, to my partnering the Eos with the utterly grain-free Pass Labs XA60.5 power amplifiers. Certainly this is not a speaker you'd want to hitch up to an amplifier or signal source that's prone to harshness.

What you gain from this acceptance of the Eos's sometimes forward nature is a really quite special blend of insight, spaciousness and sheer persuasiveness on material to which it's well suited. To label this as a speaker best adapted to

LINEAR PHASE

Of all the conventional crossover alignments, only one is linear-phase. In other words, only one does not change the shape of a complex waveform, like music, as a result of relative phase shift between different component frequencies. That crossover is the first-order crossover, whose low-pass and high-pass sections roll off at 6dB per octave and are 3dB down at the crossover frequency, and whose drive units are connected with the same polarity. The first-order crossover has always had its proponents, yet few speaker makers use it because of its disadvantages: principally that first-order acoustic slopes are difficult to achieve because of inherent driver roll-off, and that cone breakup may not be sufficiently suppressed by the slow low-pass roll-attenuation.

small musical forces would be to do it an injustice, but there's no question that it excels on simply accompanied vocals, small jazz ensembles, chamber music, etc. Particularly vocals.

TWEETER ALIGNMENT

As I'd just completed this month's review of the Pass Labs amps [see p52], conducted using Thiel CS1.6s – a speaker I've praised in the past for its midrange lucidity, and which is a good review tool because of it – it was a no-brainer to play again two of the vocal tracks I'd just used: Sara K's 'Vincent' [Chesky JD 133] and Kurt Elling's 'Goin' Back to Joe's' [Naim CD080]. So impressed was I – particularly with the Eos's ability to cut through the slight thickening that can afflict the piano accompaniment of the latter – that it was these tracks I used to

verify the importance of correctly time-aligning the tweeter.

With the tweeter optimally positioned, the Eos's ability to transport the singer to the listening room was simply uncanny.

The sound was pretty good even with the tweeter off its sweet spot, but with correct tweeter alignment the sheer resolution of vocal nuance and inflection came as something of a shock. Kurt Elling's voice in particular I've never heard more realistically rendered, and this wasn't a mere matter of hi-fi nerdiness. With the enhanced sound

*Kurt Elling's voice
I've never heard
more realistically
rendered'*

impedance inherent in sharp baffle edges, which give rise to secondary radiation and consequent smearing of time domain performance.

CROSSOVER EFFECT

The traditional knuckle-rap test confirms the inertness of the Eos cabinet, and it's there to be valued in this speaker's unusual lack of the false lower-midrange bloom that we're habituated to hearing from conventional slab-faced box cabinets. Once it's removed, you wonder how you ever lived with such a colouration.

This is one contributor to the Eos's outstandingly open, clean sound. Another, I'm sure, is the first-order crossover.

There's a widespread orthodoxy in audio's academic circles that the phase distortion

LOUDSPEAKER

LAB REPORT

GREEN MOUNTAIN EOS (£4400)

Drive units of high characteristic sensitivity and a lack of equalisation in the crossover network contribute to the Eos's high sensitivity of 92.4dB on pink noise. As the on-axis frequency response plots show [Graph 1, below], the Eos has a concave response trend, with raised presence band output, which lends it a forward tonal balance. Still, the response errors are only a little above average at $\pm 4.2\text{dB}$ (200Hz–20kHz) for both speakers and pair matching error is good at $\pm 1.0\text{dB}$. Note that these curves were arrived at by experimenting with the tweeter position to produce the flattest response, the output between 2kHz and 10kHz being very sensitive to this adjustment because of the low-order crossover.

The high sensitivity is not bought by making the Eos a difficult, low impedance amplifier load. While the minimum modulus of 4.2ohm precludes a nominal impedance rating of 8ohm, it will cause worthy amplifiers no difficulty. Phase angles are high enough to reduce the minimum EPDR (equivalent peak dissipation resistance) to 2.2ohm at 155Hz, but this still rates as only moderately challenging. Bass extension is a little disappointing at 81Hz (–6dB re. 200Hz, diffraction-corrected near-field measurement) but careful positioning of the speaker will improve the in-room performance.

The cumulative spectral decay waterfall [Graph 2, below] suggests good control of cabinet resonances but shows quite a strong resonance at 1.8kHz and what are probably bass/mid driver breakup modes at higher frequencies. Glitches in the modulus and phase versus frequency plots also indicate a significant resonance, of unknown origin, at about 340Hz. KH



ABOVE: The moulded enclosure, cast using a mineral-loaded resin, facilitates a curved cabinet form that benefits both acoustic and structural performance. The crossover and single 4mm cable terminals are held in place with a rubberised glue

came an even deeper appreciation of Elling's skill at moulding and delivering this prosaic paean to lost love. I kept repeating the track with a sense of wonderment.

LIFETIME WARRANTY

Another benefit of the Eos's inherent transparency is its ability to refresh and reinvigorate recordings which you've classified as being on the dull and turgid side. An example from my collection was the Technics-sponsored recording of Andrzej Panufnik's Violin Concerto [Conifer – alas deleted]. In place of the usual generalised bloom there was now a specific acoustic.

What the Eos doesn't do – unsurprisingly given its high sensitivity and small internal volume – is bass extension and weight. It has sufficient bass, helped by room boundary boost, to get by with most orchestral material but a lot of rock programme will show up its deficiency. The version of 'Come Together' from The Beatles' *Love* remix [Parlophone 094638078920], for example, just didn't have the necessary low frequency heft to propel the track along as it should.

What bass there is, mind you, is always tuneful, without any sense that upper bass output has been deliberately fattened in a misguided attempt to disguise the shortfall in deep bass fundamentals. Of course, moving the speakers closer to the back wall will help prop-up the bass, but this has to be done with care.

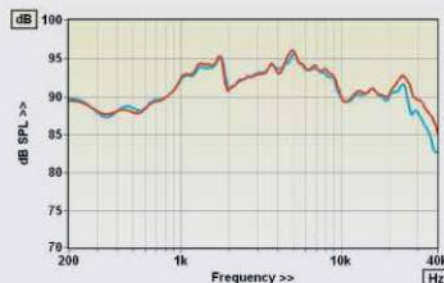
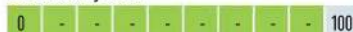
Unfortunately I didn't have a powered subwoofer on hand to try with the Eos but I'd expect a good example to plug the LF gap effectively, and quite cheaply too if carefully chosen. The Tannoy TS 1201 I reviewed a few months ago, for example, would in all likelihood be a good partner, adding weight without boom. And, sensitively set up, it should only enhance the Eos's already outstanding spatial qualities.

To finish on what may seem a downbeat note, but one that only adds to the attractions of Eos ownership, Green Mountain Audio offers a 'Happy Ears for Life' undertaking to original owners, which means that the company warrants its workmanship and the sonic performance of the speakers for life. A comforting thought... ☺

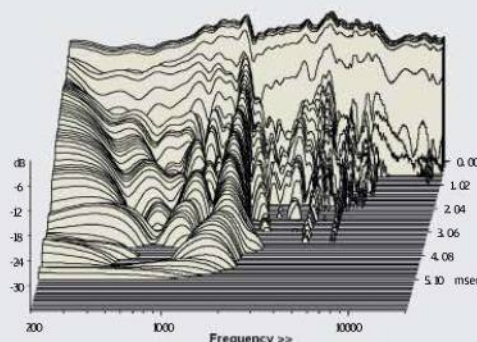
HI-FI NEWS VERDICT

Not everyone will like the Eos. Its lack of bass clout will put off some, and its upper-midrange forwardness others. But if your signal sources and amplifiers are free of hardness, and particularly if your preference is for smaller musical forces and especially the human voice, this novel, thoughtful speaker has a lot to commend it. As an alternative to the usual veneered wooden box, it comes as a breath of fresh air.

Sound Quality: 86%



ABOVE: The emphasis in output across upper mid/treble lends the Eos a forward tonal balance



ABOVE: Resonances at 1.8kHz and higher from the mid/bass driver but cabinet itself is very well damped

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	92.4dB/92.4dB/92.6dB
Impedance modulus min/max (20Hz–20kHz)	4.2ohm @ 242Hz 17.9ohm @ 38Hz
Impedance phase min/max (20Hz–20kHz)	–44° @ 130Hz 45° @ 28Hz
Pair matching (200Hz–20kHz)	$\pm 1.0\text{dB}$
LF/HF extension (–6dB ref 200Hz/10kHz)	81Hz / >40kHz/36.8kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	1.8% / 0.4% / 0.4%
Dimensions (HWD)	505x224x321mm

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INNOVATORS IN SOUND

Townshend Rock 7E (£3995)

Max Townshend's latest damping-trough turntable is heavier than its predecessor and now comes with electronic speed control. Does it set a new standard for vinyl replay?

Review: **John Bamford** Lab: **Paul Miller**

At first glance this brand new Rock 7E looks exactly like last year's £1750 Rock 7 but with an additional power supply to provide electronic speed switching. But if we thought the 'E' stood for 'electronic' it might better be considered as 'enhanced', as the Rock 7E is a considerably more substantial affair, weighing almost 50 per cent more than the standard Rock 7.

'There's a lively, euphonic sound to the basic Rock 7 that many of our customers like, but listening critically in my reference system – and comparing it with our no-holds-barred Rock V model – I could hear a slight "halo" effect that I simply knew wasn't wholly accurate,' designer Max Townshend confessed to me recently.

Consequently in its latest '7E' guise this skeletal-style Townshend deck has been beefed up with strengthening, and damping of its powder-coated steel subchassis and arm plate to make the whole more 'dead'. Townshend's goal has always been to eliminate all resonances that might colour vinyl playback.

ALMOST A DISASTER

The first Rock turntable developed during the late 1970s was the culmination of a research project to design the 'perfect transcription device for vinyl records' by post-graduate students studying mechatronics at the Cranfield Institute of Technology in Bedfordshire, under the tutelage of Professor Jack Dinsdale. With its chassis and platter formed of Granitan – a synthetic stone material, hence 'Rock' – and complex suspension system incorporating air bellows, it was considerably over-engineered and proved a commercial folly for Townshend, who manufactured it under licence.

Thirty years have witnessed several 'cost-engineered' 'Rocks' come and go, all designed to provide a resonant-free

platform for transcribing accurately a record's delicate groove while obviating deleterious external vibrations. Common to all designs is the unique front-end damping trough that needs to be swung out when changing discs [see boxout].

Using it requires a modicum of re-training: the trough is swung out, the record placed on the platter, clamped down on the threaded spindle and the trough swung back into position over the record, all before cueing the arm down on to the record. If it sounds fiddly, well, there's no denying it adds to the ritualistic ceremony of playing records. But using a Rock's trough does become second nature within a few days of ownership. Moreover it actually prevents accidental damage of precious discs, as inadvertently dropping the stylus on the record becomes less of a catastrophe. (Don't try this at home folks, but if your mains cable is sufficiently long you can carry a Rock turntable around your room while a record is actually playing. It'll wow, of course, but the stylus won't jump out of the groove!)

I'm not really a great fan of skeletal turntable designs like this with separate

motor housings, as they are of necessity more fiddly to set up, and any careless jolts require repositioning of the motor unit and correct tensioning of the drive belt to re-calibrate speed accuracy. Give me a turntable with a proper plinth and lid any day – especially as dust is the scourge of vinyl records. Still, there's no denying that a player's construction can be less elaborate when the only coupling between motor unit and platter/sub-platter is the drive belt, thereby reducing costs.

THE CLAMPING RITUAL

The Rock 7's bearing comprises a one-piece precision-ground steel shaft with a hardened bottom-end resting on a chromed steel ball, lubricated with synthetic oil. This sits in the bottom of a brass journal fixed to the main chassis. The bearing shaft extends through the deck's aluminium sub-platter and the main platter to form the centre spindle, the top of the spindle having a threaded hole to take the record clamp.

The clamping arrangement deserves description. A spacer is supplied that sits in a centre recess of the platter, comprising



ABOVE: Paddle glued to an outrigger sits in a trough of silicone to provide damping of arm/cartridge resonance. Clear plastic record clamp allows reading of the label



two finely-threaded-together discs that make the spacer adjustable in thickness: to accommodate various thickness of records when clamping them intimately to the platter. This adjustable spacer also happens to be of precisely the right dimensions to fill the centre hole of punched-out 7in singles. A further thoughtful touch is that the clamp itself is see-through (and ever-so-slightly magnifying, too) which enables you to read the record label even when the clamp is *in situ*.

Isolation comprises a three-point suspension arranged symmetrically around the platter, with an adjustable counterweight to balance the weight of the arm and trough, with four separate counterweights supplied to cover all eventualities. The suspension bellows contain regular springs each having a resonant frequency of 2Hz, the friction of air escaping through a small breather hole in the rubber bellows preventing the deck from oscillating up and down unnecessarily when disturbed.

The Rock 7's synchronous motor is made by Premotec of The Netherlands, which Townshend claims to have measured to be 6dB quieter than the best DC motor alternatives. For this 7E model the Rock 7's stepped pulley with round belt is replaced by a barrel-shaped pulley and

flat belt. Meanwhile the new Merlin II power supply is a digitally-derived dual phase unit designed to provide an 'ideal' supply to the synchronous motor, itself powered by a universal wall-wart. An LED 'wand' that flashes 100 times per second plugs into a mini jack socket on the rear, to aid accurate speed adjustment with the supplied stroboscope disc: fine speed adjustment being achieved by tilting the motor via a screw on the side of the motor unit housing. The Merlin II is available as a separate item for £1650.

LIKE CD?

There's a particular sound 'character' common to all Rock turntables, the 7E incarnation proving to be no exception. It manifests itself as a sort of dryness – a lack of bass 'bloom', if you will – that affords supreme clarity and precision in the way that bass information stops and starts.

Sly 'n' Robbie's rhythm section on Joe Cocker's *Sheffield Steel* [Island ILPS 9700] proved a case in point, the infectious beats adding gravitas and verve to the album's production in equal measure. Similarly the ebullient string bass playing by Danny Thompson on Talk Talk's *The Colour Of*

ABOVE: 40mm thick platter is high density polyethylene (HDPE), while the chassis is supported on three sprung bellows. Merlin II power supply gives electronic 33/45rpm speeds

Spring [EMI EMC 3506] underpinned the weaving backing instrumentation and melody lines with uncommon clarity, as singer Mark Hollis' nasal wailing of 'Happiness is Easy' leapt out of the sound stage creating a splendid musical

event that belied the recording's almost 30-year vintage.

It's the lack of bass 'overhang' and crystalline character that has caused observers to comment that a Rock turntable with its front-end damping

'Tightness and control extends through the frequency range'

trough sounds more like CD than any other turntable – and I wouldn't disagree. With no pun intended, it's the deck's 'rock solid' matter-of-factness that endeared me to the first example I ever heard back in the early 1980s. And this latest Rock 7E design exhibits exactly the same sense of rightness: in the way that bass notes plumb the very depths while remaining clean, controlled and ever-so-precise.

But the precision and clarity does not only manifest itself in the way that the Rock reproduces the lower registers of music recordings. If you've a predilection for deep, controlled bass and you're running large floorstanding loudspeakers capable of moving large amounts of air, it's the solid and controlled CD-like bass character that is immediately obvious for sure, 'traditional' vinyl spinners sounding bloated and coloured in comparison. But further listening shows that the tightness and control extends through the frequency range, delivering a stable image that appears locked in space, where other players appear vague and soft focused. ➤

STUCK IN THE GROOVE

A unique design feature of the first Cranfield Rock and all subsequent Rock turntable designs is its outrigger/paddle and trough of silicone oil to provide front-end damping of the arm/cartridge. It imparts a 'viscous drag' on the arm proportional to its speed of movement. At low speeds, where the cartridge has to cope with changes in groove pitch and warps, drag is negligible; at higher speeds the drag increases to effectively 'lock' the arm in position at frequencies above 20Hz. The size of the paddle and oil viscosity have been chosen to critically damp frequencies around 10Hz, where tonearms tend to resonate, while the fact that the paddle is mounted very close to the cartridge by way of the double outrigger assembly means that the cartridge is rigidly supported to a much higher frequency than it would be by arm and headshell alone.

TURNTABLE



ABOVE: Our Rock 7E came fitted with a Rega RB301 arm. Close up photo shows rubber damping material sandwiched between the steel arm board

It's kind to surface noise too, suppressing the annoyance of ticks and pops on damaged records. 'Echoes' from my ancient, well-worn US pressing of Pink Floyd's *Meddle* [Stateside 062 04 917] certainly showed its 1971 vintage compared with modern recordings, yet the magnificence of the musical form shone through as the epic performance grew in scale and drama. The turntable's relaxed, flowing quality can be deceptive and this can lead listeners to underestimate the performance. Listening to the soporific melody of 'Echoes' it sounded almost lazy at times, but in reality it wasn't slow or soft at all.

With dynamic programme material the music soon becomes vivid and explosive, while with soft, intricate interwoven lines the delicacy and sweetness in the music's detail shines through. Sharp transients are exactly as sharp as they should be: no more, no less. In every case, the Rock just seems to take everything in its stride, impervious to whatever is happening in the music.

A GREAT LEVELLER

With their front-end damping trough, Rock turntables are in some ways great arm/cartridge levellers – a bit like having a camera on a tripod. If there are a dozen photographers jostling to take a sharply-focused image outside Buckingham Palace, it won't matter

who's got the poshest camera... it's the guy with a tripod who's going to take the sharpest picture.

And listening to this latest Rock 7E design sitting beside my resident Rock Reference model (which is still going strong after more than 20 years service) it was evident that the fundamental sound character of 'the Rock' remains unchanged. As Paddy McAloon's plaintive 'Couldn't Bear To Be Special' from Prefab Sprout's *Swoon* album [Kitchenware, KWLP1] brought fond memories of the 1980s flooding back, the stability of the sound image – unswerved by the track's thunderous wafts of percussive bass accompaniment – proved conclusively that, while the 7E might look lightweight, there's nothing lightweight about the fidelity of sound it delivers. ☺

HI-FI NEWS VERDICT

Due to its skeletal design this 7E lacks the wow factor of Townshend's glossy Rock V model (substantially more at £6000) and classics of the past like the Rock Reference. Nevertheless the sound is equally majestic, with a deep, controlled bass and solid imaging that is hard to better from LP replay. If you can get over the 'inconvenience' of using the front-end damping trough you'll be amply rewarded.

Sound Quality: 84%



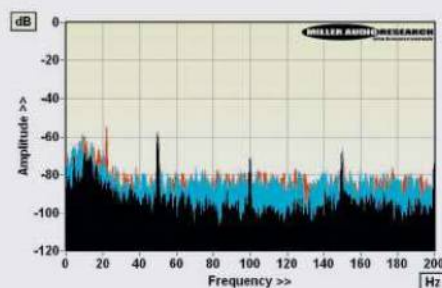
LAB REPORT

TOWNSHEND ROCK 7E (£3995)

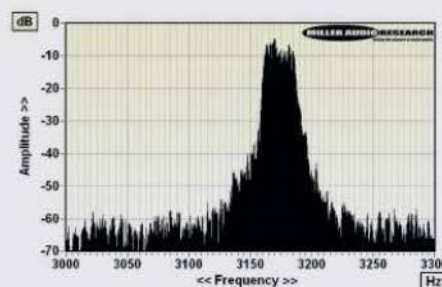
I had occasion to lab test a couple of Clearaudio decks alongside this Townshend Rock 7E, on their way to being passed fit for review, but the comparison left the latter looking rather agricultural in the fit-and-finish department. There's certainly something attractive about the sound of this deck, but the flashing left from the moulded rubber bellows and rough hewn texture of its various metalwork outrigging must also be accepted as part of its visual charm. If you're the kind of audiophile who also likes tinkering under the chassis of a classic car, then you'll get the picture.

The efficacy of that legendary oil-filled trough is fascinating. While damping down the fundamental arm/cartridge resonance it also has a mild effect, up to 1dB-2dB, on the hash of white noise generated through the vinyl grooves. This is audible in the reduction of needle-talk and visible in the difference between red and blue traces on Graph 1, below. The substantial 20dB reduction in a peak at 22Hz (often seen on these rumble plots with the Ortofon 2M Red MM pickup) is a clear example of the impact of Townshend's trough. The main bearing is also quiet with direct-coupled rumble dropping to a respectable -71.5dB.

These good results are only slightly undermined by the relatively high 0.12% peak wow, visible in the broadened peak of Graph 2, below. This is similar to the performance of Avid's Diva II [HFN, Jan '09] and the Origin Live Resolution mk2 [HFN, Apr '08] but falls short of the best. Readers are invited to view a full QC Suite report for the Townshend Rock 7E/Rega RB301 turntable/arm package by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Unwtd bearing rumble from DC-200Hz (black infill) vs. silent LP groove (red infill). Note reduction of pickup resonance at 22Hz with trough in use (blue infill)



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ± 150 Hz, 5Hz per minor division). Moderately high wow causes a broadening of the test signal

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.60rpm (+0.79%)
Time to audible stabilisation	9sec
Peak Wow/Flutter	0.12% / 0.08%
Rumble (silent groove, DIN B wtd)	-66.5dB (-67.3dB with trough)
Rumble (through bearing, DIN B wtd)	-71.5dB
Hum & Noise (unwtd, rel. to 5cm/sec)	-58.3dB
Power Consumption	2W
Dimensions (WHD)	400x150x340mm



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Musical Life Andante (£1290)

To match its hand-crafted turntables, this small German maker offers a Shibata-tipped, cryo-treated moving-coil pickup cartridge that belies its humble origins

Review: **Steve Harris** Lab: **Paul Miller**

Call it the lure of the esoteric, but this ebony-bodied cartridge intrigued me from the start. It had a hand-made look about it and was clearly the work of an uncompromising enthusiast builder. But underneath that big, blocky wooden skirt, the disturbingly naked moving-coil generator looked rather familiar. As indeed it should, because it started life inside a cartridge that has been in production since 1962. Yes, the Denon DL-103.

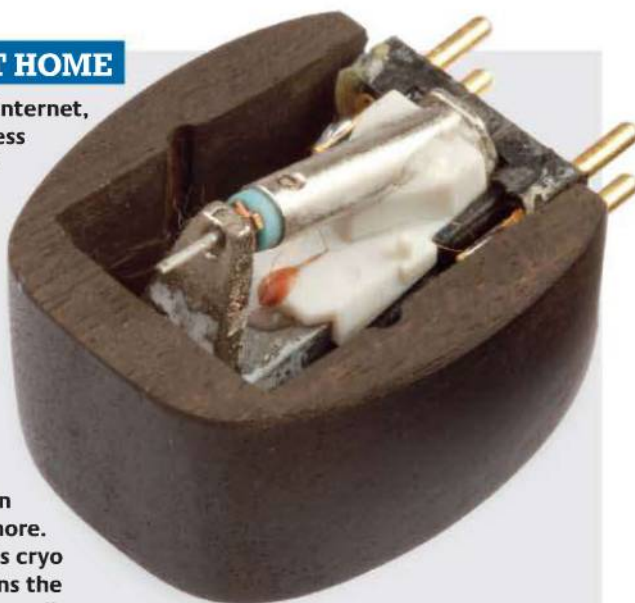
When Michael Stolz of Musical Life told me that he rebuilds the Denon with a new cantilever and stylus, I imagined that this meant completely dismantling the generator. But it doesn't. It's done by cutting off the existing cantilever, then fixing the new one into the stump. Look through a jeweller's eyeglass and you can see the joint.

Even so, this is hardly an operation you could perform on your own kitchen table. The surgery is carried out for Musical Life by Martin Göttmann of Veitsrodt, also known as 'Der Nadelspezialist' or 'the needle doctor' (visit www.nadelspezialist.de if you can read German). His new, smaller-diameter cantilever is still of aluminium but carries a Shibata stylus.

Stolz says that the compliance is reduced slightly by adjusting the tension wire that holds the assembly together from front to back. Cryogenic treatment is the other vaunted feature of the Andante. Stolz

DON'T TRY THIS AT HOME

Thanks to the uncensored internet, if you want to view a helpless Denon cartridge being cut open with a craft knife, you can. Thomas Schick, unconnected with the razor company, slices through the glue to detach the plastic casing, then push-fits the DL-103 chassis to a wood body. Go to www.thomas-schick.com. He is one of many who have re-bodied the Denon, but another German specialist has done much more. With a change of stylus plus cryo treatment, Musical Life turns the classic Denon into something all its own.



ABOVE: Musical Life's wooden body had to be wide to enclose the original Denon chassis. Avoid using this cartridge with a record clamp that measures more than 83mm in diameter

claims that the process he uses is based on several years of experiments, but doesn't give away many details. He just says that it involves cooling to -190° Celsius and takes more than a day to complete. He adds that the cryo treatment affects the rubber suspension and all the other mechanical parts of the cartridge, but not the magnets. Claimed benefit is 'a more detailed and natural sound.'

DONOR DENON

Denon's standard DL-103 is chosen over the pricier DL-103R, as he doesn't think that the 6-nines copper coils of the 'R' makes any difference, but he does prefer the basic DL-103's slightly higher output [see Lab Report].

After all this, the cartridge is glued into its new body, which has threaded holes for the mounting bolts tapped directly into the ebony. This is a relatively hard and fine-grained wood, but even so you need to be careful not to overtighten the bolts. A Rega torque wrench would probably strip the threads instantly.

For this review, I used the Andante both in my SME Model 10 turntable and in the Musical Life Jazz Mk II Reference turntable with Fortissimo arm, still on hand after the February issue review. Setting up in the SME was easy, the cartridge tracking well at just over 2.5 grams. However, I found that the end of an LP side, the unusually wide cartridge body could actually touch the rotating SME record clamp, so this combination has to be avoided in normal use. Otherwise, I didn't have any problems.

PERFORMING ARTS

With the cartridge up and running, I found myself eagerly dipping into a huge range of music from the Gabrieli Quartet to the Grateful Dead and back. But for the record, as you might say, I made the cartridge perform on my usual series of test pieces, starting with Jennifer Warnes' contribution to Rob Wasserman's *Duets* [GRP 97 121].

Warnes' 'Ballad Of The Runaway Horse' vocal had a strikingly present and

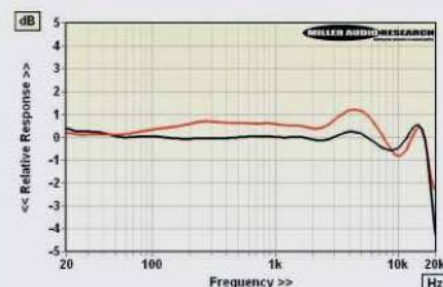


MUSICAL LIFE ANDANTE (£1290)

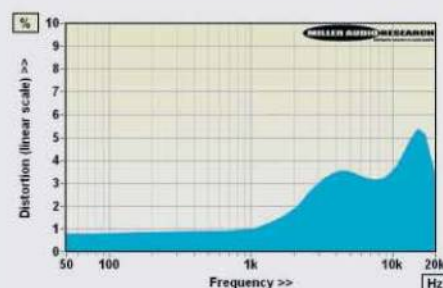
Thanks to its substantial wooden carcass, the Andante weighs in at an equally substantial 12g. This, plus the weight of bolts, might have posed an issue with arm/cartridge matching if it were not for the low-ish 12/10cu vertical/lateral dynamic compliance – a more realistic figure than the ultra-stiff 5cu suggested on Musical Life's website. Furthermore, the Andante's tracking performance is rather better than we might have expected for a low compliance MC. Assisted by the high 2.6g tracking weight, the cartridge very nearly met 80µm on both channels with distortion at 300Hz increasing from just 0.1% at +6dB to 0.35% at +12dB and finally to 0.7% at +18dB (all re. 5cm/sec). Few such MCs successfully navigate the +18dB modulation, it must be said.

The Andante's response is within ±1dB from 20Hz to 18kHz [see Graph 1, below], a flatness aided by the accurate 22° VTA, while the standard 5cm/sec output is rather higher than specified (0.3mV) at 535µV into a high impedance load and 430µV into a 100ohm load. The L/R channel imbalance is acceptable at 0.35dB but stereo separation is usefully wide at over 30dB through bass and midrange. The lateral distortion test [see Graph 2, below] shows the idealised result for the left channel, rising to just over 5% at 15kHz but hovering <1% below 1kHz. Note how the slight variations in distortion versus frequency are also reflected in the frequency response

Readers are invited to view a QC Suite test report for the Musical Life Andante pick-up by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



ABOVE: Left (black) and right (red) frequency responses, lateral groove modulation at -8dB re. 5cm/sec. Flat to within ±1dB up to 18kHz



ABOVE: Tracing and generator distortion (2nd-4th harmonics) versus frequency from 50Hz-20kHz (1kHz, -8dB re. 5cm/sec)

HI-FI NEWS SPECIFICATIONS

Generator type/weight	Moving coil / 12.0g
Recommended tracking force	2.4-2.6mN
Sensitivity/balance (re. 5cm/sec)	535µV / 0.35dB
Compliance (vertical/lateral)	12cu / 10cu
Vertical tracking angle	22 degrees
L/R Tracking ability	80µm / 76µm
L/R Distortion (-8dB, 20Hz-20kHz)	0.90-3.2% / 0.65-9.8%
Frequency resp. (20Hz-20kHz)	+0.7dB to -1.7dB
Stereo separation (1kHz / 20kHz)	32dB / 25dB

immediate quality, well separated in space from the background vocals when these loom up behind her. Wasserman's bass also had real presence and power, with a feeling that there really were strings being plucked here.

It seemed particularly easy to feel the underlying rhythms of the song, the bass effortlessly conveying a one-two-three feel over each long beat. Wasserman's overdubbed tremolandi-like accompaniment in a higher register seemed more rhythmically persuasive than usual.

I got another quick indication of the Andante's sturdy bass quality with Eric Clapton's 'Motherless Children' from 461 *Ocean Boulevard* [[RSO 2479 118].

Here Carl Radle's bass sound came over as truly propulsive, with a sense of actually moving some air, and there was a satisfying balance between his weighty bass and the busy drums. There was a nice sense of ease and freedom about the slide guitar sound, and Clapton's vocal was convincingly urgent. As for the mélange of backing guitars and organ sounds, you couldn't say that individual strands emerged with ear-catching detail, but everything bubbled along colourfully enough.

A BEEFY BASS

'Sultans Of Swing' [Dire Straits, Vertigo 9102 021] also revealed a strong and beefy bass quality, but this time there was some real shaping and harmonic detail in the sound of the instrument. Once again the backdrop of rhythm guitars seemed not to draw attention, but to stay quietly in their places.

The Andante gave a pleasing, open view of the Harry James band [King James Version, Sheffield Lab LAB-3], with a good feeling of the section men spread behind the speakers right and centre. To the left, James's trumpet solo on the opening 'Corner Pocket' had ease and a sense of real positioning in space, crackling convincingly without a hint of mistracking.

Then I moved on to Mozart, the familiar piano concerto K467 as recorded by Barenboim and the ECO in 1967 [EMI ASD 2465]. Here

the Musical Life MC showed itself capable of portraying the piano hanging in space in front of the orchestral background, placed with stability like a curtain behind. The piano never seemed to obscure the detail in the accompanying orchestral sounds, and it always seemed easy to home in and focus attention on any part you could hear.

IT'S A MUSICAL LIFE

By now, as you will have gathered, I was pretty much in favour of the Andante, and it seemed very comfortable in the SME setup. I wondered whether it would seem even more at home in Musical Life's own turntable and arm.

This time, starting again with *Duets*, Jennifer's voice was sweet, and I think a little less tightly focused. While the lead vocal was well

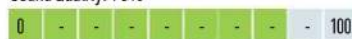
enough separated from the backing vocals, for example, I didn't get quite such a clear sense of depth layering and perspective as I had done with the cartridge installed in the SME.

With Clapton's 'Motherless Children', I felt that that the Musical Life combination presented the thing as a complete entity, a burst of energy and feeling where details of backing instruments would slip by unnoticed as the track rocked along smoothly. On both these tracks the bass seemed less well-shaped and defined than with the SME, but this didn't seem to matter too much. This was still a fine, enjoyable sound. ☺

HI-FI NEWS VERDICT

Looking crude against the obvious engineering quality of an Ortofon, or the inscrutable craftsmanship of a Koetsu, this cartridge still offers an alluring sound. It has coherence, sweetness, unfailing rhythmic integrity. On the minus side is a greater-than-usual emphasis of surface noise and a sense that there could be more detail. But if you feel brave and don't use a too-wide record clamp, you might take the plunge.

Sound Quality: 75%

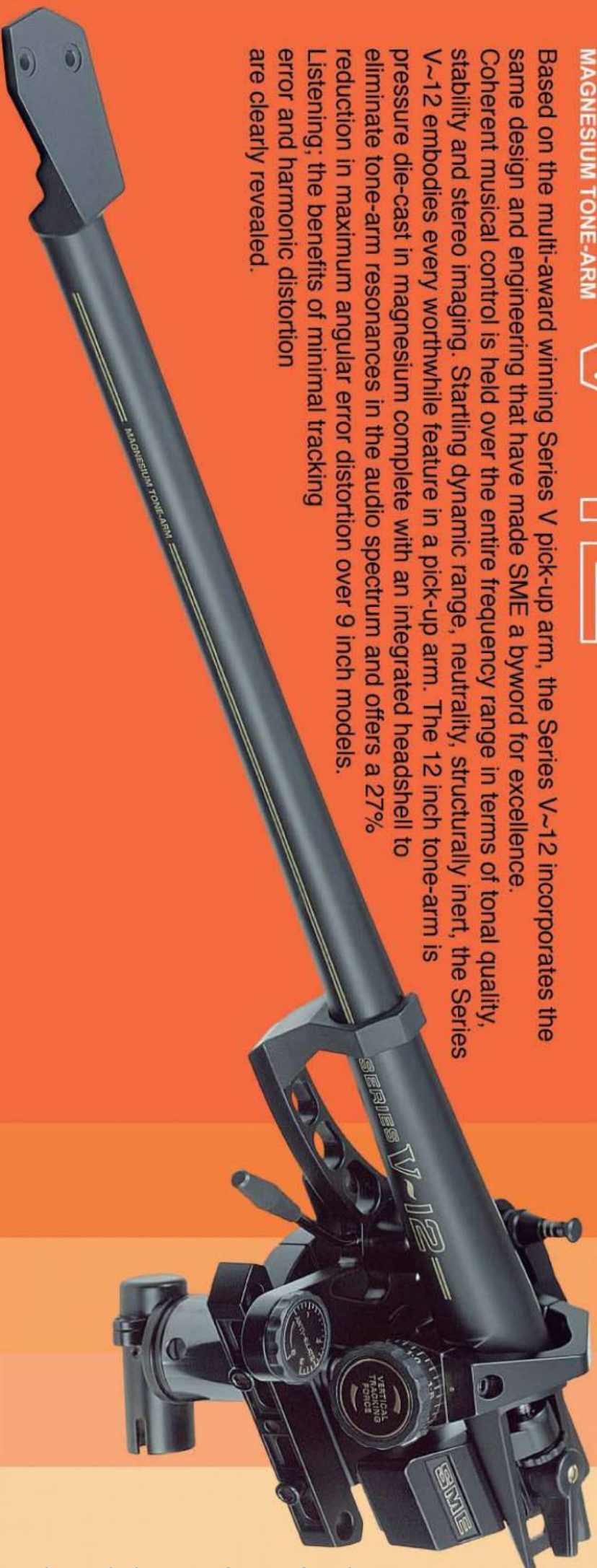


'It was particularly easy to feel the underlying rhythms of the song'

SERIES V~12

MAGNESIUM TONE-ARM

Based on the multi-award winning Series V pick-up arm, the Series V~12 incorporates the same design and engineering that have made SME a byword for excellence. Coherent musical control is held over the entire frequency range in terms of tonal quality, stability and stereo imaging. Startling dynamic range, neutrality, structurally inert, the Series V~12 embodies every worthwhile feature in a pick-up arm. The 12 inch tone-arm is pressure die-cast in magnesium complete with an integrated headshell to eliminate tone-arm resonances in the audio spectrum and offers a 27% reduction in maximum angular error distortion over 9 inch models. Listening; the benefits of minimal tracking error and harmonic distortion are clearly revealed.



SME

“The best pick-up arm in the world”

hi-fine GROUP TEST

When you've invested in a good turntable and cartridge, the next step is a decent step-up. Which of these six phono stages will make the best upgrade for your LP playing system?

PHONO STAGES £800-£1350

TESTED THIS MONTH

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AQVOX PHONO 2 CI	£899
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Cutting-edge gear, cherry-picked by the *Hi-Fi News* editor



The pinnacle of sound quality within its peer group



Great sound, great value and a cut above its rivals

• CD PLAYERS • TURNTABLES • CARTRIDGES • **PHONO STAGES** • AMPLIFIERS • HEADPHONES • SPEAKERS •

How much would you pay for a phono stage? Or how much should you pay? They come in an amazing range of shapes and sizes, but all perform the same basic function, which is to magnify the tiny electrical signals from the pick-up cartridge to a level suitable for the standard 'line level' input on your preamplifier or integrated amplifier.

It's possible to produce a device that will do this, and also give the necessary frequency response tailoring known as RIAA equalisation, for very little money. Yet there is a limit to the sound quality that even the cleverest designer can extract from a budget phono stage retailing, say, at £200 or so. To do real justice to a decent moving-coil cartridge, you inevitably need to spend more.

Then there are units around which do a better job and still cost under £500. But if you want to make a really worthwhile leap from that budget quality level, you will need to consider the kind of products we've assembled here.

Perhaps it isn't surprising that so many of the currently-available models in this category emanate

from Germany, land of a thousand turntable manufacturers and the country where vinyl never went away. Of the six models tested here, one is made in Canada, one in the USA, and four are made in Germany. All purport to give you sound quality that's several strata higher than the budget bedrock.

LOADING AND GAIN

Over the review period I used the phono stages with various cartridges and systems, and experimented with the loading and gain options provided. The main amp used was the Classé CAP-2100, which has the advantage of an accurate numerical level (volume) readout on its touchscreen display. This meant that by experiment I was able to normalise my listening levels and then make repeatable comparisons between phono stages of different gain, without being misled by changes of volume.

However, to compare the basic performance of the six products in a methodical way, I finally standardised on an excellent modern MC cartridge, the Ortofon Cadenza Blue [see *HFN*, Mar '10].

Comments on moving-coil sound quality in the following pages relate to the performance I experienced with this cartridge.

Most people who would consider spending anything like four figures on a phono stage will be intending to use it with a MC cartridge. But every potential buyer will also want to know how their phono stage is likely to perform with MM cartridges too. As a good current representative of the breed, I chose the Roksan Corus Silver. My printed comments on moving-magnet performance relate to this cartridge.

UP-MARKET MATCHING

At this price, as well as better sound, you can expect more features, mainly in the shape of more sophisticated cartridge-matching adjustments. Your interest in these aspects may depend on whether you're a compulsive tweaker, or want to leave all that stuff to your dealer or installer. Whichever, this review aims to help you find the phono stage that's right for you.

REVIEWS BY STEVE HARRIS
LAB TESTS BY PAUL MILLER

• CD PLAYERS • TURNTABLES • CARTRIDGES • **PHONO STAGES** • AMPLIFIERS • HEADPHONES • SPEAKERS •

Acoustic Signature Tango mkII (£800)

Like many of this German company's stylish products, the little Tango mkII is cleverly designed to look like a piece of solid brushed metal. From the front, only a tiny orange 'power on' indicator interrupts the sleek surfaces. There is a small plastic-cased in-line power supply to be hidden away, connected to the Tango's back panel by a non-locking three-pin DIN plug on the end of its 1.2m captive lead.

Also on the back panel, along with the phono inputs and outputs, are sets of seven DIP switches for left and right channels. The first switch in each bank selects high or low gain for MC or MM, while combinations of the next four give seven values of MM load capacitance between 50pF and 350pF. The last three give 10, 100 and 1kohm options for moving-coil load impedance.

SMOOTH YET STIRRING

Starting with the Harry James big band direct-cut, *The King James Version* [Sheffield Lab LAB-3], the Tango mkII gave a robust yet smooth and likeable sound. Without being particularly sparkling at the top end it brought out good detail in the brass instruments and in the percussion, especially cymbals, in a pleasantly ear-catching way.

Turning to Eric Clapton and 'Motherless Children' from *461 Ocean Boulevard* [RSO 2479 118], there was a stirring and zippy quality to the main rhythm guitar which kicks off, and once things really got going there was a fairly good analysis of the accompanying instruments. The bass end was strong and meaty, yet I felt that the

shaping of the bass guitar notes could have been better defined.

Moving on to *Rickie Lee Jones* [Warner K56628] and 'Easy Money', the Tango gave a fairly upfront presentation of Rickie Lee's vocal, but this and the midrange quality generally was smooth and appealing with no sense of any hard edges. The treble was fine, not exactly bright or drawing attention to itself, but allowed you to enjoy the little details in the track while giving a notably realistic tinkling celeste sound at the end. Bass was solid and deep. 'Last Chance Texaco' was very effective, as Rickie Lee's voice soared against the solid wrap of guitars, and her great vocalised traffic sounds came over really well.

Switching to the 10ohm loading seemed to restrain the bass, and in fact the sound in general, but it was not preferred. Set for 1kohm loading, it became livelier again, superficially good and open sounding, but in the end I thought it a little too splashy in the treble, and returned to the 100ohm setting without regret.

With the Tango set up for moving-magnet, I found it easy to enjoy the pleasingly dynamic and detailed character of the Corus cartridge. On the Harry James record it worked well, the bass sounding full yet quite tight and springy, the brass punchy and full-bodied without ever degenerating into a blare.

Similarly, the drum sounds had punch and a good weighty impact, while the cymbals had a convincing 'ting' when appropriate.

Sound Quality: 73%

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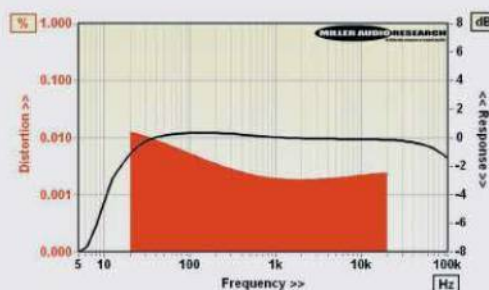


ABOVE: The Tango's casework looks all of a piece, and it is. Top, front and sides are machined from a single piece of metal

HI-FI NEWS LAB REPORT

No detailed specifications were supplied for the Tango whose 8-pin DIP switches offer just two gain settings (MM/MC) but a substantive array of input loads from 10ohm-1kohm for MCs and 47kohm/50-350pF for MMs. In practice, the two gain settings are +47.5dB and +63.4dB, the former good for MMs up to 5mV and the latter for MCs as low as 500µV. The respective A-wtd S/N ratios of 87.5dB and 75.2dB are not the best in our test but are still more than sufficient for LP replay with the grandest equipment. Distortion, too, is slightly higher than average at bass frequencies [red infill, below], but then you'll never find a MM or MC capable of besting 0.013% at 20Hz.

Acoustic Signature has engineered a fixed bass roll-off of -1dB/20Hz, which may not be sufficient to quell excessive LF behaviour with some arm/cartridge combinations, but the high treble is true to within -0.2dB/20kHz and -1.5dB/100kHz [black trace, below]. A limited input overload margin is the Tango's real Achilles' Heel with just 28mV causing distortion to rise to 1% - this is a headroom of just +15dB over a 5mV MM output. PM



ABOVE: RIAA-corrected response from 5Hz-100kHz (black) plus distortion versus frequency (red) from 20Hz-20kHz



ABOVE: Along with phono in/outs and a DIN socket for power input, a set of DIP switches for each channel set load impedance (MC) and capacitance (MM)

Input loading (MM/MC)	47kohm/50-350pF / 10-1kohm
Input sensitivity (MM/MC re. 0dBV)	4.22mV / 0.68mV
Input overload (MM/MC)	28mV / 4.6mV
Maximum output (re. 1% THD)	6.0V
A-wtd S/N ratio (re. 5mV/500µV in)	87.5dB / 75.2dB
Frequency response (20Hz-20kHz)	-1.1dB to -1.5dB
Distortion (20Hz-20kHz, re. 0dBV)	0.0127-0.0018%
Power consumption	4W
Dimensions (WHD)	145x55x145mm

Aqvox Phono 2 CI (£899)

Launched in 2006, the Aqvox Phono 2 CI is the only product in this group to offer continuously-variable gain controls for fine tuning as well as a basic step gain change, using DIP switches, to suit both MC and MM cartridges. Further switches select 100ohm or 1kohm MC loading, or add capacitance up to 470pF for MM.

More unusually, Aqvox offers the option not only of balanced outputs, but balanced inputs. Since very few people will already have balanced wiring from the cartridge, Aqvox provides a pair of phono-to-XLR adaptors which will allow users to try the effect of the balanced input's current drive amplifier stage, before investing in a full-scale rewire.

WALKING TALL

With its preset switches at +20dB gain setting for MC use, the Aqvox had less gain than the Acoustic Signature's MC setting. On the Harry James record, I first tried the Aqvox's front panel controls up to their maximum +12dB setting, also adjusting the volume on the main amplifier. But reducing the Phono 2 CI's front-panel gain controls down to +6 and turning up the main amplifier accordingly seemed to give me a sound with more life and space in it, better from top to bottom really, with a more explicitly tuneful bass, a much more appealing midrange and a bit more zing to the cymbals.

Of course, the main amplifier still had plenty of headroom, so I tried turning the Aqvox controls down to 0dB, but with no further improvement, the sound even perhaps losing some of its attractive

space and shimmer. So I stayed with the middle +6dB position.

On 'Motherless Children', the Aqvox seemed immediately to give a more three-dimensional sound picture than the Acoustic Signature had done, with instruments placed more tangibly in space. It even managed to give more feeling of height to the image on this track. It had the kind of detail that seemed to hook you into the music a bit more, and I felt the bass was more appropriately controlled.

On 'Easy Money' the Aqvox somehow seemed to find a little more delicacy and subtlety in Rickie Lee Jones' voice. The bottom end was a little heavier, the sound of Red Callender's string bass on the intro weightier, more tactile perhaps, though not, I think, quite as compelling rhythmically.

Moving on to the MM set-up, and starting again with Harry James, I found that the Aqvox gave a more delicately-shaded quality to the midrange sounds compared to the Acoustic Signature, with a little more feeling of space around the instruments, in a big soundstage that was quite well laid out behind and around the speakers. Percussion sounds seemed to have a more full-bodied quality, while the bass seemed more free and extended.

Sound Quality: 75%

0 - - - - - 100

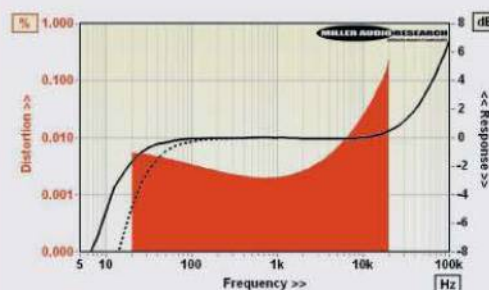


ABOVE: 'These are no volume controls' warns the instruction book. In fact the two knobs can vary the phono stage's gain by 12dB. To the left is the button for the subsonic filter, which lights up blue when the filter is switched in

HI-FI NEWS LAB REPORT

Uniquely in our test, the Phono 2 CI accommodates the inherently balanced (floating) output of MM/MC pickups. The amplifier provides a basic gain of +39.1dB via its balanced outputs, which is insufficient even for high output MMs (11mV required for 1V out) but offers additional +6dB and +20dB steps for greater compatibility. Moreover, the further +12.8dB of variable gain offered by the front-mounted pots not only ensures the Phono 2 CI will accommodate every MM and MC available but also facilitates very fine L/R channel balancing.

A subsonic filter further rolls away its low bass from -1.6dB/20Hz to -4.8dB/20Hz but subjective bass will also be influenced by the increasing output impedance - 200ohm at 1kHz but 3.3kohm at 20Hz. The boosted (ultrasonic) treble from +0.5dB/20kHz to +6.8dB/100kHz [black trace, below] will have less impact. Similarly, distortion also rises swiftly with increasing frequency [red infill, below] from a mere 0.002% midband to 0.23% at 20kHz. Noise is also slightly higher than the group average with an A-wtd S/N ratio of 80.5dB at minimum gain. PM



ABOVE: RIAA-corrected response (black) with low bass filter (dashed) plus distortion versus frequency (red)

Input loading (MM/MC)	47kohm/47-470pF / 100-1kohm
Input sensitivity (Min. gain re. 0dBV)	11.1mV (bal. out)
Input overload (Min. gain)	120mV
Maximum output (re. 1% THD)	>10V (bal. out)
A-wtd S/N ratio (re. 5mV in, min. gain)	80.5dB (bal. out)
Frequency response (20Hz-20kHz)	-1.6dB (-4.8dB) to +6.8dB
Distortion (20Hz-20kHz, re. 0dBV)	0.0019-0.23%
Power consumption	8W
Dimensions (WHD)	435x59x290mm



ABOVE: The most unusual Aqvox feature is the pair of balanced inputs, but to exploit these fully you need to have balanced tonearm wiring from the cartridge

Lehmann Black Cube Decade (£1350)

In this two-box model the usual plastic-cased in-line transformer gives way to Lehmann's PWX II power supply, its frontal aspect uniform with the phono stage itself except for its lack of controls, and notably well-built. You can hide it away if you want, as the power cable that joins the two is 2m long.

As for those controls, one of the three miniature toggles selects an optional low bass cut, -6dB per octave below 60Hz, which you can use to cut speaker-threatening subsonic frequencies arising from warped records, for example. The next selects MM or MC sensitivity while the third gives an extra 10dB of gain if needed. Underneath, an array of DIP switches provides 100ohm or 1kohm loading for MCs or added capacitance for MM.

LITHE AND KICKING

Starting once again with the Harry James big band, I found the bass subjectively less heavy than it had been with either the Acoustic Signature or Aqvox. I put it that way rather than saying the bass was 'lighter' because the Lehmann's balance seemed more correct, and the double bass sound had a relatively lithe, unexaggerated quality that really helped the rhythmic flow.

Perhaps partly related to this, there was a pleasing open quality to the presentation as if the music was being allowed to breathe a bit more. James's solo trumpet had a good feeling of tangible presence in front of his band, and drummer LesDemerle's all-important cymbal sounds had life and realism, insistent but crisply heard, not splashy or over-prominent.

Moving on to 'Motherless Children', the Lehmann seemed in

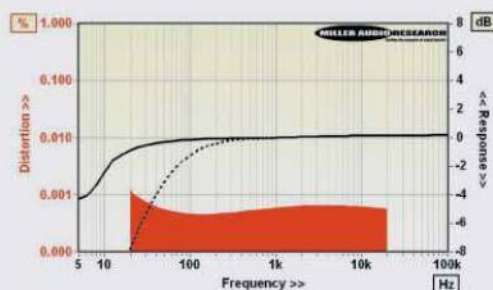


ABOVE: Here the neat front panel switches select MM or MC sensitivity, add 10dB extra gain, or engage a subsonic filter

HI-FI NEWS LAB REPORT

Previously tested in *HFN* Sep '07, the Black Cube Decade looks to be largely unchanged. Its standard +36dB (+35.3dB) gain is increased to +45.0dB in the 'High' setting which will be more appropriate for most MMs, requiring 5.6mV rather than 17.2mV to raise 1V from its single-ended outputs. The MC setting offers +56.0dB gain which is sufficient for medium-to-high output pickups. Gain may be slightly low but, on the flipside, the Decade offers a generous 160mV/15mV input headroom with MM/MC cartridges together with wide 93dB/77dB A-wtd S/N ratios. Both MM and MC responses show a built-in bass roll-off of -0.9dB/20Hz, a mild tailoring that increases to -7.7dB/20Hz with the LF filter option engaged [dashed trace, below], and an HF that stretches right out to 100kHz within +0.15dB.

Distortion is very low at 0.0005-0.0012% from 20Hz-20kHz on the right channel but, as we discovered three years ago, is rather higher (if not *high*) at 0.033-0.037% through the left. Is this a feature of an asymmetric circuit layout or has importer Henley Designs simply shipped us the same box? **PM**



ABOVE: RIAA-corrected response (black) with low bass filter (dashed) plus distortion versus frequency (red)

Input loading (MM/MC)	47kohm/100pF-1nF / 100-1kohm
Input sensitivity (MM/MC re. 0dBV)	17.2mV / 1.59mV
Input overload (MM/MC)	160mV / 15.0mV
Maximum output (re. 1% THD)	9.1V
A-wtd S/N ratio (re. 5mV/500µV in)	92.7dB / 76.8dB
Frequency response (20Hz-20kHz)	-0.87dB (-7.7dB) to +0.15dB
Distortion (20Hz-20kHz, re. 0dBV)	0.00045-0.0012%
Power consumption	12W
Dimensions (WHD)	110x44x280mm (each)



ABOVE: The PWX II power unit, on the right, connects to the phono stage itself via a Neutrik locking 4-pin plug. A second power outlet is also provided

Moon LP 5.3RS (£1350)



Unlike all the other units here except the Aqvox, the Moon has its power supply transformer built in, and so it plugs into the mains without an additional box. However, you can upgrade at any time by adding a PSX5.3 external power supply, in matching casework.

On the back, Moon provides balanced XLR outputs as well as the usual phono ins and outs. To set up, you need to remove the cover to access the multiple arrays of jumpers mounted on the main circuit board. Gain can be set not only to the standard 40dB for MM and 60dB for MC, but also to 54dB or 66dB. Impedance loading can be set at 10, 100, 470ohm or 1kohm for MC, or at 47kohm for MM, with capacitance options of 0, 100pF and 470pF. Finally, one last pair of jumpers can be moved by the user to switch between RIAA and IEC equalisation curves.

REAL DEAL

Almost from the first notes, the Moon showed a delicacy, a seeming ability to reveal feather-edges of detail which had perhaps been suppressed or coarsened before. On my Harry James disc, the soundstage began to convey something like a real space around each instrument. Drums, piano and brass all gained in realism, with a freedom from stress or strain. It started to feel as if you could just relax into the sounds of the musical event without mental effort, just as you'd be able to do if you'd walked into the real venue.

Moving on to 'Motherless', the Moon seemed to bring a fuller perspective to the soundstage than the Lehmann, Clapton's vocal seemingly nestled in, and slightly back from, a relatively seamless skein of accompanying instruments between and around the speakers. Stereo images had stability and tangibility. The bass seemed to go deep with a natural, breathy quality.

Turning to 'Easy Money', the Moon again revealed a bass quality that was impressively extended and had a feeling of authority, although the overall effect was refined almost to the point of being a little staid.

Yet the Moon was able to reveal the subtler nuances of Rickie Lee's vocal phrasing, her poet's ear for rhythm and the unique way she'll pull a phrase into a shape you don't quite expect. Drifting on to 'Last Chance Texaco', the Moon did a great job at resolving those chiming rhythm guitars.

On the MM settings with the Harry James record, the Moon gave an impression of retrieving lots of detail in a busy soundstage, though that extended bass now seemed a little soft. The leader's trumpet solos had a real bark, while brass and reeds came over with pungent attack, although perhaps not with the maximum dynamic freedom.

Sound Quality: 88%

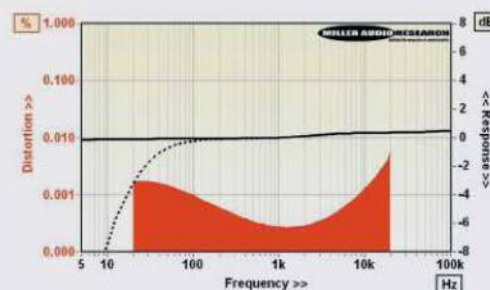


ABOVE: With its 10mm-thick fascia, this is a chunky unit. Like Lehmann, Moon offers a choice of black or silver finish

HI-FI NEWS LAB REPORT

Although not the most convenient to use (all its adjustments are under the bonnet), the LP5.3 RS is both flexible and technically improved since last reviewed [HFN, Sep '07]. The four gain settings, rated at 40dB, 54dB, 60dB and 66dB, amount to +46.3dB, +60.7dB, +66.0dB and +71.5dB via the balanced outputs which offer >10V from a usefully low 49ohm source impedance. Stereo separation is as wide as 95dB through the midrange while the RIAA-corrected response is flat to within ±0.5dB over a massive 5Hz-100kHz bandwidth. The IEC curve option rolls the bass away to -3dB/20Hz [dotted trace, below].

Users must weigh the choice of gain against the modest input overload margin offered by the LP5.3 RS, from 60mV at +40dB to just 3.4mV at the +66dB setting (about 16.7dB over a 500µV MC output). Otherwise, distortion is very low at ~0.0003% through the midrange, rising to just 0.005% at 20kHz (40dB gain setting) while the A-wtd S/N ratio is exceptional at 93.6dB, decreasing to a perfectly fine 78dB through the highest (+66dB) gain MC setting. This is one quiet phono stage! PM



ABOVE: RIAA-corrected response (black) with low bass filter (dashed) plus distortion versus frequency (red)

Input loading (MM/MC)	47kohm/0-470pF / 47-1kohm
Input sensitivity (MM/MC re. 0dBV)	4.90mV / 0.27mV (bal. out)
Input overload (MM/MC)	60mV / 3.4mV
Maximum output (re. 1% THD)	>10V (bal. out)
A-wtd S/N ratio (re. 5mV/500µV in)	93.6dB / 78.2dB (bal. out)
Frequency response (20Hz-20kHz)	-0.10dB (-3.2dB) to +0.35dB
Distortion (20Hz-20kHz, re. 0dBV)	0.00027-0.0054%
Power consumption	3W
Dimensions (WHD)	203x83x279mm



ABOVE: Balanced as well as single-ended outputs are provided, while a socket on the right allows you to add the optional PSX5.3 external power supply

Sutherland Ph3D (£800)



Outwardly the Sutherland Ph3D looks like any other slim, black full-width component. Pick it up and you will see that there is no mains cable, feel that it's surprisingly heavy, and hear a slight clunk or two, as the 16 Size-D dry cells inside shift a little in their holders.

As it relies on batteries, the Ph3D is the only unit in the group to need a front-panel on/off switch. The pilot light next to this also serves as a simple 'battery low' indicator. When the voltage from the cells drops too far, the light won't come on.

A simple back panel carries only input/output phonos and a grounding post, and you need to remove the cover to set gain and loading options. Sutherland, like Moon, has avoided the usual DIP switches. Movable gold-plated jumpers are used instead, providing gain settings from 40dB to 60dB in 5dB steps and load options of 100, 200, 1k, 10k and 47kohm. These are so clearly laid out and labelled that you hardly need to consult the instruction book.

MOVING AIR

With the Sutherland Ph3D, the *King James* soundstage seemed even wider than with the Moon, and still seemed to have depth even at the corners. At the same time, James's solo trumpet has a little more crackle and fizz about it.

From the opening grooves of 'Motherless Children', the Sutherland seemed to convey a sense of urgency and push that was really stimulating, if almost too anarchic at times. There was a good, extended and air-moving quality to the bass guitar, combined with a sense of immediacy and better bass tune-playing ability than the Moon.



On 'Easy Money', I found the Sutherland very enjoyable, sounding almost jaunty. The familiar double-bass intro was nicely full but still rhythmically commanding. Rickie Lee's vocal was clear and limpid, with a feel of studio ambience around it. The rhythm throughout the song had a gently insistent bounce, and the drummer's brushwork was beautifully conveyed.

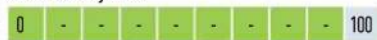
Above all, you could believe that these musicians were not just dubbing parts over existing tracks. They really were playing together.

Over on the moving-magnet setup, the Sutherland seemed to me, more noticeably than any of the other units so far, to display the same kind of character it had shown on moving-coil.

It sounded big, energetic and lively, the brass sounding punchy, and even, I thought, with a tendency to shout too much. The bass that was quite weighty yet not heavy-footed, really gave the music a bit of a bounce.

In fact for me, the Sutherland really shone on the James band's drum feature, 'Cherokee', where it seemed fast, responsive and foot-tapping, allowing big-hitting drummer Les DeMerle, surely a disciple of Buddy Rich, to put a smile on my face.

Sound Quality: 83%

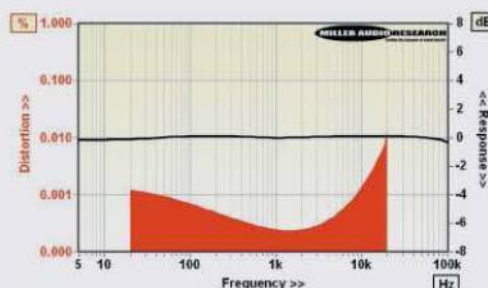


ABOVE: The Ph3D should be turned off when not in use to avoid wasting battery life, hence the front-panel on/off switch

HI-FI NEWS LAB REPORT

Much of Sutherland's literature is given over to the benefits of its battery PSU but we were provided with no numerical data by way of confirmation. Low noise is a key claim and, with an impressive 91.5dB A-wtd S/N ratio via its lowest 40dB gain setting, the Ph3D is up with the very best. Nevertheless, other phono preamp solutions with mains-fed PSUs still achieve as good if not better results (including Moon's 5.3RS). There's no questioning the calibration of the Ph3D's gain, however, with its 40dB, 45dB, 50dB, 55dB and 60dB options testing as +40.4dB, +44.9dB, +49.3dB, +55.2dB and +60.5dB, respectively.

Distortion is very low through bass and midrange (down to 0.0003%) but increases sharply to 0.013% at 20kHz [red infill, below] even though input overload margins are generous at 81mV (+40dB setting). Both the Ph3D's output impedance (192ohm) and RIAA-corrected response are very flat and, in the latter case, hugely extended at 5Hz-100kHz ± 0.3 dB [black trace, below]. Subsonic signals, including LP warps and arm/cartridge resonances will not be attenuated by the Sutherland. PM



ABOVE: RIAA-corrected response (black) from 5Hz-100kHz plus distortion versus frequency (red) from 20Hz-20kHz

Input loading (MM/MC)	10k-47kohm/100pF / 100-1kohm
Input sensitivity (MM/MC re. 0dBV)	9.41mV / 0.89mV
Input overload (MM/MC)	81mV / 7.7mV
Maximum output (re. 1% THD)	8V
A-wtd S/N ratio (re. 5mV/500µV in)	91.5dB / 74.5dB
Frequency response (20Hz-20kHz)	-0.10dB to -0.32dB
Distortion (20Hz-20kHz, re. 0dBV)	0.00023-0.012%
Power consumption	N/A
Dimensions (WHD)	432x51x305mm



ABOVE: Rear panel connections are limited to the usual RCA phono input and output sockets and grounding post. Setup adjustments are to be found inside

Thorens TEP 302 (£1200)

To some eyes, the TEP 302 will look like a Thorens advertising sign that happens to have a phono stage inside it, but of course it's really designed to match the big TD550 turntable. You can dim the blue-lit logo, but not turn it off completely, with a back-panel screw adjuster labelled 'Ambience'.

Apart from this, the panel carries just the usual phono inputs and outputs, a grounding post and a screw-locked DIN socket to bring power from the separate in-line mains transformer. Underneath the unit can be found two pairs of DIP switches to select MM or MC sensitivity, nominally 40dB and 60dB of gain, while sets of six switches for each channel combine to give more than a dozen MC impedance settings from 1kohm down to 99ohm, and add up to 350pF capacitance for MM cartridges.

BIG ON BITE

On *The King James Version* the Thorens gave a big bold sound. The music enjoyed a feeling of life and presence with the acoustic heard as a kind of cloud of ambience, but the overall effect could seem uncontrolled at times. James's trumpet solo on 'Corner Pocket' had dramatic impact, even though it did almost have more brassy edge than body. Dave Stone's bass had a free and bouncy quality, which was certainly appealing.

On the brass ensemble passages the effect could seem a little congested compared with other units in this group, but there was a feeling of a spirited occasion. As for stereo imaging, in the sparser passages of 'Lara's Theme', for example, the Thorens could convey

the spacing between the piano at far left and farthest right trumpet and sax in the band the stage. But when things got louder and more complex, the delineation of instruments spaced in the soundstage left something to be desired.

'Motherless Children' again kicked off well with a seemingly big exciting sound. However, and I'm putting it too crudely here, against the Sutherland and Moon it seemed as if the Thorens' sound tended to be loud all the time, rather than conveying real dynamics. It was not outstandingly detailed, so although you perceived the different instruments in a complex mix, they didn't always shine out with real identity.

Meanwhile, bass quality was weighty and firm, but the result was not as rhythmically engaging as it could have been.

With *Rickie Lee Jones* and 'Easy Money', it was a similar story, except that the music here seemed to bring out the Thorens' strengths more than any weaknesses. It could sound forthright, expressive, punchy and weighty by turns, but did not manage to make the music dance along as the Sutherland could.

Again, on moving-magnet set-up, the Thorens gave a quite upfront, almost brash presentation of the music. On the Harry James record, the brass instruments had a bite and attack that could, I felt, become a little too fierce. The bass seemed a little too thunky, but this time it moved the music along in a presentably toe-tapping way.

Sound Quality: 70%

0 - - - - - 100

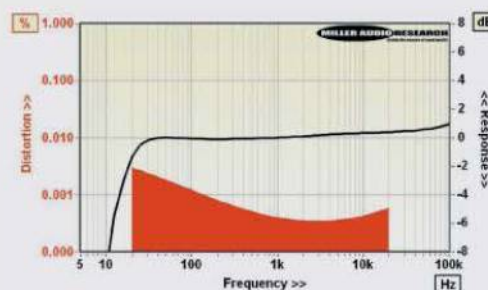


ABOVE: Like Thorens' TD550 turntable, this unit has a blue-lit panel logo. It can be dimmed by the 'Ambience' control

HI-FI NEWS LAB REPORT

In common with the Tango, Thorens' phono preamp offers just two basic gain settings alongside a comprehensive range of input loads for both MM and MC pickup types. Thorens has chosen a +43.7dB gain for MM types, requiring 6.6mV for a 1V output, increasing to +64.6dB for MC cartridges, requiring 590µV for 1V out. Incidentally, the TEP 302 has a reasonably uniform 375-210ohm output impedance suitable for use with standard 47kohm input line amplifiers. Its RIAA-corrected response shows a fairly steep subsonic roll-off below 20Hz (-9.4dB at 10Hz) – a fixed rather than optional feature [see black trace, below]. Thorens has also ensured the TEP 302 has adequate input overload margins on a par with the Sutherland and Moon, with 62mV of headroom via MM and 5.5mV via MC.

In line with the subsonic roll-off and increasing LF output impedance, the TEP 302 also shows a slight increase in distortion through the bass, rising from 0.00035% at 1kHz to 0.003% at 20Hz [red infill, below] although this is hardly 'high'. The 88dB A-wtd S/N ratio is also perfectly adequate. PM



ABOVE: RIAA-corrected response (black) from 5Hz-100kHz plus distortion versus frequency (red) from 20Hz-20kHz

Input loading (MM/MC)	47kohm/15-350pF / 99-1kohm
Input sensitivity (MM/MC re. 0dBV)	6.56mV / 0.59mV
Input overload (MM/MC)	62mV / 5.5mV
Maximum output (re. 1% THD)	>5V
A-wtd S/N ratio (re. 5mV/500µV in)	88.0dB / 73.5dB
Frequency response (20Hz-20kHz)	-1.3dB to +0.95dB
Distortion (20Hz-20kHz, re. 0dBV)	0.0030-0.00035%
Power consumption	6W
Dimensions (WHD)	232x50x174mm



ABOVE: Seen here between the real-wood end cheeks are the usual inputs and outputs, and a power input socket. Setup DIP switches are on the underside

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GROUP TEST VERDICT

• CD PLAYERS • TURNTABLES • CARTRIDGES • PHONO STAGES • AMPLIFIERS • HEADPHONES • SPEAKERS •

Our six phono candidates naturally split into two groups, three falling below the £1000 price point while the other three will stretch your finances further.

Of the less expensive contenders in this group, the one that has been around longest is the Acoustic Signature Tango mkII. It's still a satisfying piece of industrial design offering good sound for the money, and could still be a good buy if you want a great-looking phono stage that you can fit without fuss.

Almost the opposite is the Aqvox Phono 2 CI. It can give a more layered sound than the Tango and is a tweaker's delight. Its front-panel gain controls will have you endlessly fine-tuning, while its balanced inputs will lure you into re-cabling your turntable. Judged on its single-ended performance alone, it is fairly good value, and if you are tempted by the balanced route it could certainly be a good way to go.

Completely different again, the American Sutherland Ph3D is really a lower-cost version of the designer's ultimate phono stage, doing without the big model's power management and rechargeable batteries. If you remember to turn it off when not in use, the Ph3D's 1200-hour non-rechargeable battery life should be enough for at least a few months'

listening. As for sonics, the Sutherland delivers an arrestingly lively sound, not matched by any other product in this group.

UP IN PRICE...

Of the three higher-priced units, the newest design is Thorens' TEP 302. It produced a sound that could seem bustling and vivid but I felt it did not quite measure up to what could be done at this price. It was almost as if there was a good phono stage inside trying to get out, and I suspected it could have been transformed by a better power supply. A suitable choice if you're pairing it with a big Thorens turntable, but otherwise not the greatest value for money. Also made in Germany is the Lehmann Black Cube Decade. It offers a very high standard and majors on precision, detail retrieval and perfect balance in terms of frequency response. Combining excellent build with sensible features, it is the only unit in this group to offer MM/MC switching from the front panel,



along with an additional switchable 10dB gain and a subsonic filter.

Finally, we come to the Moon LP5.3RS. The LP5.3 has been around for some time, but products with the 'RS' suffix are said to benefit from better materials and parts, such as gold-plated circuit boards together with better capacitors.

This may contribute to the Moon's refined sound with good and natural imaging, better in this respect than the Lehmann, though still with a

certain subtle quality of restraint. The Lehmann wins if neutrality and accuracy are high on your list of priorities.

'Our six phono candidates split into two groups...'

FIRST CHOICE

If absolutely forced to choose a single winner,

I would personally have to choose the Moon LP5.3RS, though the Lehmann Black Cube Decade will be first the choice for many.

And even then, it would still be nice to have a Sutherland on hand for special occasions. ☺



ABOVE: Outstanding – Moon LP5.3RS
LEFT & BELOW: Lehmann Black Cube Decade and Sutherland's Ph3D

• CD PLAYERS • TURNTABLES • CARTRIDGES • PHONO STAGES • AMPLIFIERS • HEADPHONES • SPEAKERS •

Eastern Electric MiniMax (£1199)

A revamp brings this hybrid CD player to the attention of valve enthusiasts for a second time, with claims it will consign your record collection to history...

Review: **Anne Reckless** Lab: **Paul Miller**

The MiniMax will make you forget about your vinyl collection,' was the extravagant claim made by manufacturers Eastern Electric when it brought out this hybrid CD player in 2004 as an accompaniment to the company's tube preamps and power amplifiers of the same name. The same claim is made of the product's more recent relaunch. Gary Cargill of UK supplier Audio Emotion says: 'Golden Ears [Eastern Electric's Hong Kong designer Alex Yeung] tweaks everything himself. He spent 18 months working to achieve the vinyl sound of the MiniMax. It's inherently the same CD player, but tweaked'.

All good designers continually strive to improve the performance of their products as better discrete components become available or are 'discovered'. Alex Yeung is no different in this regard and since the original release of the MiniMax CD there have been a finite number of these tweaks incorporated in the player, including capacitor revisions, all designed to keep the MiniMax on top of its game.

Eastern Electric is a joint venture begun in 2001 between Yeung and US-based Morningstar Audio Imports' Bill O'Connell, and only manufactures mid to high-end valve-based audio products. China, along with Russia, never stopped producing valves and after the fall of Soviet communism and the relaxing of global trade regulations in China, the rest of the world was able to share in what has become a tube renaissance.

The idea of imbuing a digital CD player with a more 'analogue sound' by incorporating valves in the final output stage is hardly new, of course. After all, California Audio Labs introduced its seminal Tempest tube player back in 1986 while Musical Fidelity has employed tiny nuvistor triodes in various of its digital products up to the present day. Eastern Electric also has

a new DAC, dubbed the 001, soon to be added to its range. This will offer a choice of solid-state and valve output options, selected from its front panel by the user.

READY TO ROLL

The MiniMax, which incorporates a Philips CD12 transport, has two 6922-type vacuum tubes and the user manual actively encourages tube-rolling, the company supplying a pair of white gloves for handling the tubes should you wish to remove them. All in all it's good news for those tube fanatics who like nothing better than to spend time rooting around in cardboard boxes in the back of vintage electrical shops in search of the Holy Grail of valves – whether it be old stock, used old stock or present-day production tubes. Also, there is no need to remove the cover of the player to gain access to the tubes. If you're not into such experimentation, don't worry. The manual adds, as a rather predictable afterthought: 'You don't have to, as the tubes we supply sound great.'

The unit comes with a customised toroidal power transformer, which, according to Eastern Electric, should mean less electromagnetic interference than is the case when cheaper power supplies are

employed. There is much to be said for this. Toroidal transformers typically have lower stray magnetic fields than laminated frame-style transformers while their compact profile can help reduce mechanical hum. [For more on transformers and tubes, see our *Investigation* feature on p16.]

Meanwhile, the player supports both CD-Rs and HDCD-encoded CDs thanks to the choice of a fully compatible Burr-Brown DAC. For all its audiophile pretension, neither is the MiniMax a behemoth of a player, weighing just 6kg and, at 316x95x338mm (whd), truly compact and bijou. It looks utilitarian, but stylish for all that. It's pretty easy to set up too.

NOT SO REMOTE CONTROL

The remote is, remarkably, a solid ingot of aluminium, but not too heavy. However, the screws to the cover of the battery compartment are hidden under pads, which have to be replaced each time you need to get to the batteries (replacement pads come with the player). This could prove annoying. In addition, I found it difficult to find the right angle at which the player would respond to the remote until I eventually discovered that flinging my arm straight up in the air and aiming



RIGHT: The MiniMax combines a Philips CDM12 transport mechanism with Burr-Brown PCM1732 DAC and two 6922 output triodes in its final analogue output stage



the handset down at the unit seemed to be the optimum. Not ideal.

Otherwise, the remote handset beefs-up the rather limited controls offered on the player itself, with direct track access keys, repeat and program play options. The player's IR receiver is not buried in the display, where it might get blocked by an open drawer, but I still had trouble loading discs by remote unless I was standing three feet or less away. That said, the CD tray mechanism itself was smooth and tracks loaded up remarkably quickly, which was much appreciated after all the to-ing and fro-ing. It didn't seem to take long to warm up, either, coming on song almost out of the box, although, of course, the sound improved with running-in time.

The player also offers a headphone socket, driven from a more conventional op-amp. Hooked up to a pair of Sennheiser HD475s the performance was pretty disappointing. This option is strictly for use when private listening is a necessity and you have no other alternative.

SWEET SOUNDS

I have to admit that I have been spoilt when it comes to my digital source. I own a Meridian G08 24-bit upsampling CD player (£2500 when launched), applauded for its musically accurate reproduction, sense of immediacy and great imaging. And, of course, its warmth. And I have

to agree. So how did this valve player compare to my pride and joy?

To hear the MiniMax in action I combined it with a Meridian 502 preamp and 557 power amp, and B&W's Nautilus 804D (diamond tweeter) speakers, bi-wired with Van den Hul Cleartrack cables. I used StraightWire Harmony II single-ended interconnects as my G08 is hooked up to the preamp using balanced connections.

One of my benchmark CDs is the digitally re-mastered 1950s recording of Dietrich Fischer-Dieskau singing Schubert's Schwanengesang on *Great Recordings Of The Century* [EMI B000058UT2]. On the G08, it is almost as if the great singer is present in my listening room, floating somewhere behind the speakers, to the centre. To these ears it's this 'aliveness' or presence that helps give the Meridian its analogue-like sound.

With the MiniMax I wasn't disappointed. He was there alright. But this time he was accompanied not only by pianist Gerald Moore, but also by something else that took me back to my old vinyl days – a faint hiss in the background. I'm not sure what would cause this [see Lab Report] but once the music got going I hardly noticed it, and the way in which the MiniMax conveyed

'Davis's trumpet made me jump as he sprang into the room'

ABOVE: A truly 'compact' compact disc player, the MiniMax features a custom toroidal power transformer developed from scratch by Eastern Electric's designer, Alex Yeung

Fischer-Dieskau's honeyed voice, without a hint of syrup (if that makes sense), more than made up for it.

Next came Miles Davis's *A Kind Of Blue*, a 20-bit re-mastered CD issue from Colombia [CK 64935, 01-064935-10]. Again, a quiet hiss, but the overall impact of the sound sent chills down my spine. Soundstaging was excellent, Paul Chambers' bass sounded warm yet taut, while the highs of Davis's trumpet actually

made me jump as he sprang into my living room with a crystal clarity. I decided to turn the volume right down to a level which, on the G08, is almost inaudible and quite tiring to interpret over

a moderate period. In this case, the music remained clear, with no straining on my part. The legendary Bill Evans on piano sounded, well, legendary.

Now the real test: Jethro Tull's 'Songs From The Wood' from the album *Original Masters*, issued on CD by Chrysalis Records [CDP32 1515-2]. I had always believed this release to sound poor due to the G08's upsampling skills, which revealed every inadequacy of the original recording. But no, here it was in all its glory. Voices were no longer nasal, and every instrument was distinct. Suddenly it was exciting and real.

WHISTLE BLOWER

I thought things could not get any better. But then I tried another of my previous disappointments. *Angela Hewitt: The Keyboard Concertos* [Hyperion, B0009K9P7K] with her playing Bach's harpsichord concerto BWV1052 on piano. It was recorded in 2005, but I'd found the piano playing muddy and indistinct – and

EMOTIONAL INTELLIGENCE

Audio Emotion was started by Gary Cargill and brother Mark in the far-flung reaches of Leven near Fife in Scotland in 2008 and supplies all of Eastern Electric's products and a wide range of solid-state equipment. Gary spent 12 years as an electronic engineer for Marconi Instruments and Mark is a classically trained violinist. As well as being able to make use of listening rooms on site, customers are 'highly encouraged' to take advantage of the company's home demonstration service. When I asked Gary whether the MiniMax sound was due to the valves alone or more down to the circuit topology typically used in conjunction with tubes he said: 'I think the answer lies right at the centre point of both your conclusions: it's the perfect marriage of an audio perfectionist's [Yeung's] intelligent circuit design and the right "blend" of valve selection.'

CD PLAYER

LAB REPORT

EASTERN ELECTRIC MINIMAX (£1199)



ABOVE: The two 6922 output triodes are clearly visible through the back panel alongside the coaxial digital and stereo audio outputs

this from a pianist renowned for her clarity. Here the MiniMax really came into its own, revealing a phenomenal crispness to Hewitt's playing and all the nuances of her dynamics.

What particularly struck me here was its immediacy and intense emotional impact.

David Bowie's *Station To Station* [RCA 1976] was my next choice – a collector's item now. That evocative sound of the steam train flitting back and forth between the speakers sounded more real than I'd ever heard it (when the whistle blew I experienced my own *Brief Encounter*) and the bass was punchier and more taut. Bowie's usually sibilant-sounding voice was more open and articulated. Forget the remastered version that's come out recently. How can it beat this?

Well, on to one of my teenage blasts from the past: Camel's *Moonmadness* [Decca reissue, 1983]. It's a poor recording. On the G08 and other systems I've owned, the beginning, with its piercing melody over a throbbing bass had sounded almost painful – impossible to listen to at any volume. But now all the unwanted brightness was gone. Then the flute melody – full and vibrant. It was the first time I've enjoyed this album for years. And that warmth, again, in the choral entries – smooth and atmospheric.

QUESTION OF BALANCE

However, there was one major hiccup with this so-far very musical player. My Beethoven quartets were a disaster! Both the superlative Borodin quartet [Chandos, 2004] and the historic combination of Jacqueline du Pré, Barenboim, Zuckerman and Kovacevich [EMI Classics]. I was baffled. On my G08 they sounded vibrant and majestic.

With the MiniMax – and by now I'd run it in for almost two weeks, with great improvement overall – the music sounded brittle and lifeless. Quartet playing is all about balance, so perhaps the Minimax struggles to pick up the constant tension necessary for ensemble playing.

A FINAL EXPERIMENT...

Finally, there was just one more experiment I wanted to make, and forgive me if it is from another classical piece. Just one chord, nothing more, that begins the finale of Beethoven's Ninth Symphony, from a recording by the Berlin Philharmonic Orchestra conducted by Herbert von Karajan [remastered by Deutsche Grammophon, B000001G6W]. It's actually the simultaneous dissonant sounding of a D minor chord and a B-flat major chord in its first inversion. It had always, no matter what system I had, sounded mangled and lost.

The MiniMax rose to the occasion and communicated almost every note – and it was sublime, as Beethoven meant it to be. ☺

HI-FI NEWS VERDICT

Frustrating remote and 'phone performance aside, this player is pretty darn good for the price. It manages to combine fatigue-free listening with great emotional intensity, plus all the warmth you'd expect from valves. It may lack the ultimate refinement of costlier players but it injects more than a little colour into the £1000 market. With the fun of custom tube-rolling part of the attraction, it's a real enthusiast's choice.

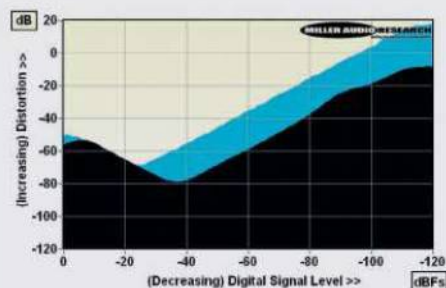
Sound Quality: 80%



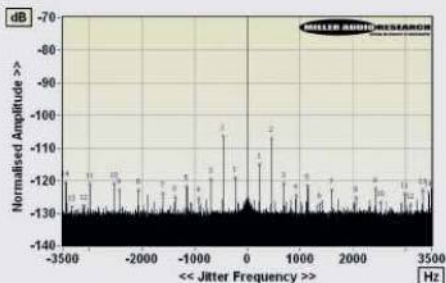
The digital heart of this little player is really rather fine as the moderate 330psec jitter serves to suggest [see Graph 2, below]. The $\pm 229\text{Hz}$ sidebands, marked from 1-3 in pairs, are a modification of the data pattern used to probe for the possibility of jitter in the first place, but are very low in level. What's more interesting is the complete absence of 50Hz or 100Hz sidebands resulting in a modulation of the clock or datastream with the player's power supply – a good result.

Superimposed over this 'clean' digital performance is a rather more colourful valve perspective, courtesy of the two 6922 triodes, dominating with a strong 2nd harmonic distortion over the top 30dB of its dynamic range [see Graph 1, below] and by noise at lower levels. The analogue noise floor is a little untidy from 20Hz-2kHz where the PSU intrudes, suppressing the overall S/N ratio to a just-about-16bit level of 95dB, even with A-weighting.

Distortion is reasonably high, by CD standards, at $\sim 0.35\%$ at its peak 2V output level but at least this 'character' is consistent with frequency, seemingly as strong in the low bass as high treble, for example. The subjective bass will be influenced, more likely, by the increase in the Minimax's output impedance from a respectable 120ohm through the midrange to a high 2kohm at 20Hz. The small peak in frequency response of +0.37dB at 17kHz will not add any brightness to the sound, however. Readers are invited to view comprehensive QC Suite test reports for the Eastern Electric Minimax CD player by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion versus digital signal level over a 120dB dynamic range using 16-bit CD data at 1kHz (black) and 20kHz (blue)



ABOVE: High resolution jitter plot, the main sidebands (mkrs 1, 2, 3) are all data-related but low in level

HI-FI NEWS SPECIFICATIONS

Maximum Output Level	2.04Vrms
A-wtd S/N Ratio	94.8dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.35% / 0.013%
Distortion & Noise (20kHz, 0dBfs)	0.36%
Frequency resp. (20Hz-20kHz)	-0.19dB to +0.37dB
Digital jitter	330psec
Resolution @ -100dB	$\pm 2.0\text{dB}$
Power consumption	20W
Dimensions (WHD)	316x95x338mm

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Pass Labs XA60.5 (£9850 pair)

Magnificently styled but very conservatively rated, this Class A amplifier is engineered by design guru Nelson Pass to deliver a truly memorable, musical performance

Review: **Keith Howard** Lab: **Paul Miller**

Any audiophile who takes an interest in amplifier design cannot fail to have been fascinated down the years by the career and products of Nelson Pass, one of the doyens – if not *the* doyen – of American high-end amplifier design. Always prepared to think out of the box, he has in recent years developed novel circuit configurations that have improved inherent linearity and so lessened the need to apply negative feedback, promoted the cause of circuit simplicity with his series of Zen designs, and delighted those who still know how to use a soldering iron not just by developing DIY-only projects but also by progressively releasing details of his commercial designs, so that those with sufficient skill and motivation can build them at home.

I've been itching to listen to one of Pass's latest amplifiers for years now, so the arrival of two Pass Labs XA60.5 monoblocks was almost better than Christmas (which fell a few weeks earlier). Bottom of the five-model XA.5 series of mono power amplifiers (there is also an XA30.5 stereo model), all of them true Class A designs unlike the 'high bias' Class AB X.5 range, it offers a rated output of 60W and, it's claimed, much higher current capability than previous XA models: to the tune of a five-fold improvement. So tough loudspeaker loads, of which there are still many, are grist to the XA.5 series' mill.

COMPENSATIONS OF CLASS A

Because of the high quiescent power dissipation inherent in Class A operation, the XA.5 series is constrained in power capability compared to the X.5 series – the XA200.5, top of the Class A models, delivers a rated 200W compared to the 1kW of the X1000.5. But the traditional virtues of Class A promise compensation in the form of effortless detail and natural warmth of sound. You pay for this in your

electricity bills. The XA60.5 is specified as drawing 225W from the wall socket but my mains monitor said 136W for one of the review pair and 150W for the other, for a mains voltage of 240Vrms. On this basis the XA60.5 won't remain in Class A up to voltage clipping into low impedances, although I expect PM will have more to say about that in his Lab Report [see page 57].

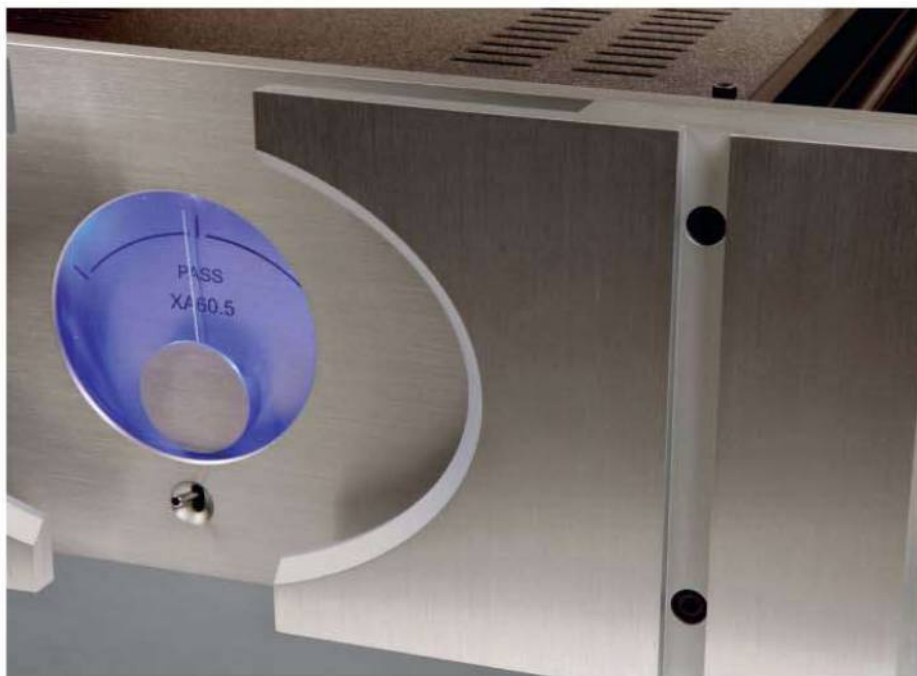
Nelson Pass's attitude to measurements, by the way, to judge from a Robert Harley interview available from the Pass Labs web site, squares with what I regard as the enlightened audiophile view (although Pass has had much more opportunity to verify it than most of us) – that good measured performance is a necessary but not sufficient condition for good sound quality. In other words, that measurements tell you something but not everything about how an amplifier sounds.

He particularly believes that correlations between measured performance and subjective quality are stronger with simple circuits, and that the key design goal should be to achieve good technical

performance with minimum circuit complexity – a philosophy to which he has devoted himself for many years, and which the XA.5 series exemplifies.

MR MUSCLE LOOKS

As far as aesthetics go, the XA60.5 is straight from the US muscle amp style book: chunky aluminium fascia, large heatsinks along either side and grab handles at the back to make lifting its 27.6kg a little easier. But there are novelties: the extravagant sculpting of the front panel, the illuminated meter at its centre – which displays *what* exactly (the manual doesn't say)? – and the uptilted heatsink vanes that run horizontally, front to back, rather than vertically, and so cannot be optimal for air convection. Personally, I'd be glad to trade all of them for more utilitarian alternatives and superior output terminals on the rear panel, since the current fitments are too short to accept the full length of most 4mm plugs, and they are too closely spaced and too flimsy to be ideal with



RIGHT: Extravagantly shaped fascia of thick anodised aluminium makes an immediate visual impact but the purpose of the illuminated central meter display is not immediately clear...



large types of spade connectors that need tightening hard.

The XA60.5 has two pairs of output sockets, by the way, to facilitate bi-wiring – but they are disposed to either side of the back panel, as if this were a stereo amplifier. Note – as the owner's manual warns – that the output is balanced, so the black terminal is not connected to earth. A separate earth terminal is provided if you need to hook up a powered subwoofer via its high-level inputs. Another odd touch is the use of a wire link to short pins 1 and 3 of the XLR input socket, for when the amplifier is driven from an unbalanced source via the phono input above. Even though the link is gold-plated this is a rather crude solution, surely – and that link is easy to misplace.

But then nobody is going to buy this amplifier for its couture styling or camera finish. They'll buy it for its sound, and that really is something out of the ordinary. Take my advice, though, and – however great the temptation – don't do as I did and listen to the XA60.5, or any of its siblings, immediately after powering it up. The manual recommends one hour warm-up time prior to serious listening; I'd suggest 90 minutes or even two hours, even though your electricity meter is

whizzing round in the interim. Because if you listen too soon the XA60.5 will sound disjointed and ill at ease – descriptions you couldn't possibly use of it once it has settled into its stride.

ENDLESSLY INVITING

For this is an amplifier which melds transparency and tonal warmth, subtle insight and dynamic weight with a facility that may well be unprecedented. Its sound is endlessly inviting but you never have the sense that it's pulling the wool over your eyes, that it is playing some euphonic trick of tonal balance or distortion. Actually it is resolutely neutral, and able to pick up, dust off and start all over again tracks you thought you knew intimately. But it delivers that insight without ever sounding aggressive or sterile. Quite the opposite in fact: it lives and breathes as few other amplifiers manage.

As I've observed before, the simple things in audio are sometimes the hardest, a good example being convincing reproduction of a single human voice – partly, no doubt, because of its significance

'You never have the sense that it's pulling the wool over your eyes'

ABOVE: Another unusual visual feature is the side mounted heatsinks, which have horizontal, uptilted vanes rather than the usual vertical ones. In use these get hot to the touch


and familiarity to us. So three of the first batch of tracks I played were: singer-songwriter Sara K's interpretation of Don McLean's 'Vincent' [Chesky JD 133]; James Griffett's fine performance of the old English song 'Turtle Dove' [Regis RRC1112]; and Kurt Elling's stylish evocation of the desperation underpinning 'Goin' Back to Joe's' [Naim CD080]. All, in their very different ways, fine recordings of a solo singer, albeit with just a single instrument accompaniment in the case of Sara K and Kurt Elling.

With all three I was struck by the rare persuasiveness of the voice: its natural warmth, its subtlety of inflection, its flow. The Sara K track was particularly riveting. This is not a song that anyone should dare cover without a fresh take on it, and Sara K's understated, world-weary performance never sounded a more valid alternative to McLean's towering original than it did via the Pass Labs XA60.5.

A CLASS ACT

What distinguishes Class A power amplifiers from the more common Class B type is the amount of no-signal – 'idling', 'quiescent' or 'standing' – current flowing through the output devices. In Class A, this current is sufficiently high that both halves of a push-pull output stage continue conducting throughout the signal cycle. Whereas in Class B, the current is very much lower, sufficient only to ensure a near seamless hand-over of one half of the output stage to the other as the signal changes polarity. This high standing current makes a Class A power amplifier inefficient. Delivering full power into the rated load it nominally achieves its maximum efficiency of 50%, but maintaining Class A operation into low impedance loads requires increased standing current, thus reducing efficiency still further.

AN OLD FAVOURITE

Time for something more complex, so on went Eric Clapton's 'Double Trouble' [Polydor 531 827-2], a track I use a lot as an exemplar of the sheer vitality that a good live rock recording can convey, despite its inevitable technical imperfections. Or perhaps they are, curiously, part of the attraction. Even before the song started I was thinking that I'd never heard the audience conveyed so palpably before, and as I continued listening I realised I was hearing the track 

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POWER AMPLIFIER



ABOVE: Balanced and unbalanced inputs are available via XLR and phono, together with two pairs of output terminals, an earth terminal and 12V remote switch-on

anew – that what, for example, had previously been just an on-beat cymbal was now an on-beat cymbal with a distinct *character*. I must have listened to this track at least a hundred times before, yet it seemed newly minted!

SOMETHING MAGICAL

This revelatory experience inevitably sends you off in search of items you haven't played in a while, hopeful of new insights – and that hope the XA60.5 usually fulfils.

For instance, I dug out the mid-'50s recording of Karajan conducting the Philharmonia Orchestra in Tchaikovsky's Symphony No.6 [EMI 0094637247426] – an interesting release on both musical and technical levels. Musically because it is an opportunity to hear Karajan, before he became a megalomaniac, conducting a 'superband' British orchestra that he had done much to shape and which was in its prime. And technically because this is a rare example of 'staggered head' stereo, recorded on a tape machine with two record heads positioned some distance apart along the tape path, because compact stereo recording heads were not then available. Because it needed a specially adapted machine to replay the stereo tape, the recording was not released in stereo on LP until it appeared on the HMV Concert Classics label in 1981.

You couldn't listen to this and think it was a modern recording: the high hiss level gives away its age and there is tape squash clearly audible in the crescendos. Still, there's something a little magical about this recording, and the XA60.5 was able to extract and burnish that magic in a way I simply haven't experienced previously. Somehow the 55-year

gulf between performance and replay was bridged more effortlessly, and more tellingly, than ever before, enabling the performance to shine through the technical limitations.

On good modern orchestral recordings, like Hilary Hahn's haunting *The Lark Ascending* by Vaughan Williams [DG 474 8732], the XA60.5's insight into both performance and recording was no less compelling. The sense of profound calm in the orchestra's quieter passages, the soaring violin, the overwhelming sense of a rural idyll that was shattered by WW1 – all were so mesmerising that I had to remind myself that I was listening to the CD layer, not the SACD layer that I had so enjoyed when reviewing the Mark Levinson No5 12 [HFN Feb '10]. If only it and the XA60.5 had been here at the same time... But then I might still be barricaded in the listening room.

In over 32 years of writing about audio equipment, I've only had a handful of truly revelatory experiences. The XA60.5 is a new addition to that shortlist. ☺

HI-FI NEWS VERDICT

Could anyone fail to be enthralled by the sound of the XA60.5? I suppose it's possible if you've become used to the glare of a lesser solid-state amplifier or the alluring sophistry of some valve amps. But if you haven't forgotten what music really sounds like, and you have source components and speakers able to do justice to the XA60.5's capabilities, then hearing one could well be a life-changing experience.

Sound Quality: 88%

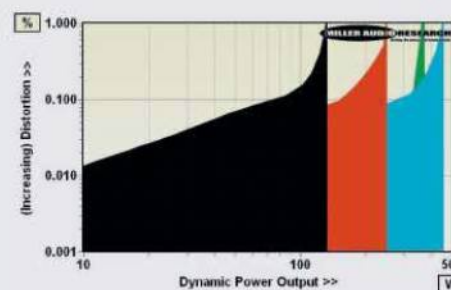


LAB REPORT

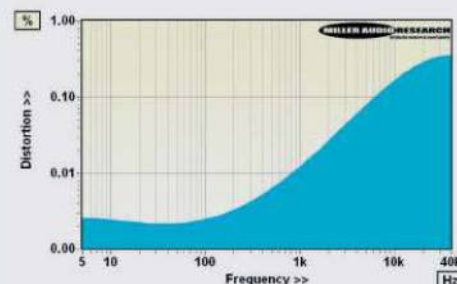
PASS LABS XA60.5 (£9850 a pair)

Nelson Pass may well be an understated design genius, but to rate the XA60.5 at merely 60W/8ohm is conservative in the extreme. In practice the XA60.5 will deliver closer to 125W/8ohm and 225W/4ohm with dynamic outputs of 133W, 250W, 460W and 375W into 8, 4, 2 and 1ohm loads all up to 1% THD [see Graph 1, below]. This is no shrinking Class A violet. The low 0.017ohm output impedance through bass and treble is also useful, the gentle increase to 0.035ohm/20kHz and 0.28ohm/100kHz commensurate with the gently rolled-off response of -0.13dB/20kHz to -2.5dB/100kHz. The A-wtd S/N is wide at 87.5dB (re. 0dBW) and the overall gain as specified at +26.7dB (balanced input).

The real character of the XA60.5 lies beyond Nelson's specification for the amplifier. The idle power consumption of 150W only increases to 193W at the rated 60W/8ohm output, suggesting the XA60.5 is operating in Class A over much of its dynamic range. But distortion, or how distortion changes with power output and frequency, is the key to the 'sound' of this amp. The XA60.5's distortion increases proportionately with power output from 0.0013% at 1W to 0.013% at 10W through 0.08% at its rated 60W to 0.14% at 100W/8ohm (all at 1kHz). Versus frequency, distortion betrays the same trend – 0.0025% at 20Hz, 0.026% at 2kHz and 0.28% at 20kHz. This simply has to be 'engineered' for a desired sound [see Graph 2, below] and is a testament to the man's mastery of circuit design. Readers are invited to view a comprehensive QC Suite test report for the Pass Labs XA60.5 by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads.



ABOVE: Distortion versus frequency from 5Hz to 40kHz (10W/8ohm). Note the controlled (contrived) increase in distortion from 100Hz-10kHz

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	129W / 228W
Dynamic power (<1% THD, 8/4/2/1ohm)	133W / 250W / 460W / 375W
Output impedance (20Hz-20kHz)	0.017-0.034ohm
Frequency response (20Hz-100kHz)	+0.0dB to -2.5dB
Input sensitivity (for 0dBW/60W)	134mV / 1037mV (balanced)
A-wtd S/N ratio (re. 0dBW/60W)	87.5dB / 105.3dB
Distortion (20Hz-20kHz)	0.0026-0.27%
Power consumption (Idle/Rated o/p)	150W/193W (15W standby)
Dimensions (WHD)	483x178x483mm

Triangle Magellan Quatuor SE (£10,899)

This limited edition speaker is from Triangle's top range: it features a horn-loaded tweeter, but is it a contender?
 Review: **Ken Kessler & Keith Howard** Lab: **Keith Howard**

Never having reviewed a pair of Triangles, the speakers nonetheless seem omnipresent to me. As it nears its 30th anniversary, Triangle has been working hard to grab a chunk of the high-end market (it currently supplies four UK retailers, as listed on the French company's website). This has been achieved in no small way by exhibiting, in style, at major hi-fi shows, where they can be heard with predictable regularity. Two years ago, at the Paris high-end show, the Triangle room featured a live percussionist, providing show attendees with a real-world reference for bass reproduction. The Triangles did not disappoint when following what was indeed a tough act.

The Quatuor SE appears to be a conventional column speaker, but it bursts with an abundance of drivers and details.

KEITH HOWARD EXPLAINS...

Yes, the Quatuor SE is a three-way (with crossovers at a quoted 400Hz and 2.8kHz) and, yes, it has three paralleled bass drivers, reflex-loaded by a front-firing port beneath. But the tweeter is not the usual flush-mounted soft dome or metal dome unit. It has a 25mm titanium dome but this is recessed from the front baffle, at the throat of a short metal horn.

Last month's group test of cheaper floorstanders included the Acoustic Energy Radiance 3, an early adopter of SEAS's similar DXT technology. Now, the DXT tweeter horn is shallower and lacks the Triangle unit's bullet-shaped phase plug. But they both serve the same principal purpose: to control the tweeter's directivity so that there is less of a step-change when it takes over from the midrange driver. (See

the box-out for more on this.) And this isn't the Quatuor's only surprise regarding its high frequency provisions because round the back of the cabinet there is a second, backwards-firing unit.

This is connected in-phase with the forward-firing tweeter and forms part of Triangle's Dynamic Pulse System (DPS), which is intended to contribute to a deep, open and stable soundstage.

A downside of this type of tall, deep cabinet is that it entails large side panels that can all too easily become a significant source of unwanted 'cabinet talk'. Triangle has sought to obviate this two ways with the Quatuor: first by using curved rather than flat side panels, which are inherently stiffer; and second by incorporating extensive internal bracing in the form of interlocking horizontal and vertical ribs.

Although Triangle makes a noise about its Regulated Phase Crossover (RPC) technology, to judge by the description this is no more than a careful realisation of the well-known Linkwitz-Riley crossover alignment – an assumption backed up by the fact that the slopes are fourth-order (24dB per octave) in the mid/treble crossover and second-order (12dB per octave) in the bass/mid section. The crossover is electrically split, with two pairs of input terminals allowing bi-wiring or bi-amping (although I noted that some output can still be heard from the midrange driver and tweeter when the amplifier is connected only to the lower, bass terminals). For single-wire use, stout linking wires are provided rather than metal plates. All the drive units are of Triangle's own design.

TOE THE LINE

Manipulating the Quatuor is a two-person job. Once in place, you'll need to experiment with toe-in, for the speaker responds to moves of as small as a centimetre with quite

RIGHT: Unusual visual features of the Quatuor include a horn-loaded tweeter, incorporated to control directivity, and a unique plinth arrangement with a fifth foot at the front





TO BEAM OR NOT TO BEAM

Although a speaker's forward frequency response has the biggest influence on its sound quality, what happens off the listening axis is important too as it eventually reaches the listener either by direct reflection from room boundaries or as a result of being integrated into the room's reverberant sound field. In recent years many manufacturers have looked to control off-axis response more carefully than before, by taking measures to avoid the large changes in directivity which can occur at the crossover of the bass-mid or midrange driver to the tweeter. One way of achieving this is by horn-loading the tweeter, which increases the apparent size of the small tweeter diaphragm to that of the horn mouth. As this more nearly matches the diameter of the midrange driver diaphragm, sharp changes in directivity through crossover are avoided. **KH**

blatant changes to the dimensions of the soundstage, if not necessarily the tonal quality (the large central cone with integral pivoting circular foot at its apex is a help here as it enables the Quator to be tilted forwards and rotated). In this respect, the speaker reminds me of Wilsons and Sonus fabers, both of which reward the fastidious listener with the ability to balance stage width and stage depth to suit either the music or one's taste.

TANKED UP WITH SHERMAN

As I listen in the near-field, sitting only 2.5m from the speaker line, I tend to dial in greater stage width over front-to-back depth. With the Triangles, they were almost firing directly forward, just 20mm toe-in being exactly what was needed to mate them to a system comprising McIntosh C2200 preamp and MC2102 power amp, with SME 30/Series V/Lyra analogue front end and Marantz CD12/DA12 CD player, attached with Transparent and Yter.

Recalling that every Triangle demo I'd heard made me think of vintage JBLs for detail and attack, crossed with LS3/5As for imaging, I turned to a recent rediscovery. Unbeknownst to me, as an 11-year-old laughing gleefully at 'Hello Muddah, Hello Fadduh!', Allan Sherman had recorded his comedy LPs with hand-picked audiences in a studio at Warner Bros, where he imbued the live performances with the feel of a nightclub. A rarely-seen photo in the booklet with the Rhino 6CD collection, *My Son, The Box*, gives the modern, soundstage-obsessed audiophile a perfect key to the audience's positioning, room size and other concerns.

More than one audio sage has remarked that laughter and applause are as tough to reproduce realistically as any

musical instrument. The former can grate, or merely sound like white-noise crowd, while the latter can emulate a bowl of Rice Krispies mic'd up to a PA. With comedy albums – even more than with live music recordings – you *need* the audience noises to render the event sonically convincing.

While the sound was slightly more brittle than I prefer, particularly when you consider that the pre- and power amps are all-valve, there was an overall warmth and sense of air that reinforced the performer's and the producer's desire to recreate in the home a sense of a live occasion. Anyone who's ever been to a comedy club will know that the laughter from fellow revellers carries you along with the comedy, as much as the humour itself. The Triangles captured this in a spectacular fashion, compromised only by a tiny trace


of sibilance not heard through LS3/5As or Wilson Sophia 2s.

'Applause is as tough to reproduce as any musical instrument'

REAL MUSIC

Abandoning this jolly fodder for 'real' music, the new Del Shannon 'best of'

yielded gorgeous covers of 'Out Of Time' and 'Sea of Love', with Shannon aided and abetted by no less than Tom Petty. Here we have a voice that at first strikes you as merely one of the better ones to emerge during the dark years between Elvis joining the US Army and the arrival of the Beatles, but which stood out for falsetto swoops, and a way with angst that has you reaching for the Kleenex. Through the Quatuor SE, the performances retained an analogue feel even though heard via CD. This was in sharp contrast to the slight edge that the extreme treble possesses, yet perfectly consistent with the sense of air that seems to be the Triangle's forte.

Nearly as rewarding is the bass, which has the tautness of the best JBLs of the '60s/'70s, while lacking their papery 

LOUDSPEAKER

LAB REPORT

TRIANGLE QUATUOR SE (£10899)

Triangle quotes a sensitivity of 90dB for the Magellan Quatuor and that accords exactly with our measurement, adjusted for a pink noise input signal and averaged for both speakers. Its on-axis response – measured on the tweeter axis [Graph 1, below], which is a little higher than normal seated ear level – is far from being flat, the prominent features being a deep, wide trough in output between 1kHz and 4kHz, a shelved-up treble response beyond that and what looks like a cancellation notch, perhaps caused by reflection within the tweeter horn, at about 20kHz. Frequency response errors are large as a result, amounting to ± 8.0 dB and ± 7.6 dB respectively from 200Hz to 20kHz – but reduce a little if the upper frequency limit is pegged back to 19kHz. The upper treble excess should be curtailed when listening off-axis.

Pair matching appears poor at ± 2.2 dB but the largest disparities occur in the extreme treble; at lower frequencies the matching is much tighter. Triangle quotes a minimum impedance modulus of 3ohm but we measured a slightly lower figure of 2.6ohm. Moreover, the high phase angles make for a low minimum EPDR (equivalent peak dissipation resistance) of a low 1.1ohm at 94Hz, with another dip to 1.4ohm at 2.3kHz – so the Quatuor is a tough load to drive. A bass extension of 53Hz, -6 dB (re. 200Hz), is nothing to write home about for a speaker this large but near-field bass measurement suggests that the bass response is deliberately sculpted, perhaps to account for boundary effects. The cumulative spectral decay waterfall [Graph 2, below] could be better but the control of cabinet modes appears to be good. KH



ABOVE: A split crossover allows for bi-wiring or bi-amping, the upper pair of terminals connecting to the mid and treble sections and the bottom pair to the bass

dryness. It's a rich, deep, flowing low-end, its overall character being fashioned of equal parts retro and modern. What's so pleasantly surprising is that it is not aggressive, in the modern fashion, yet it will deal handily with the excesses of both hard rock and club music.

A few CD samplers that came my way filled with fierce, Euro-electromuzak prove that the Triangles have no problem dispatching loud and punchy material, although the larger Magellans that I've heard do possess greater weight, as might be expected. Wilson's Sophia 2 (in a shorter enclosure but with a similar footprint) sounded more robust in the lower octaves, its more life-like bass complementing a smoother top-end. Side-by-side, it's a case of Bordeaux versus Burgundy, because the differences are not marginal, but acceptable enough to inspire choices by taste rather than audiophilic doctrine.

COULD BE A CONTENDER

The Magellan Quatuor SE is a serious contender, professionally presented, with ample technological backing to state its case. The burning question it raises is one which we can easily dismiss as the product's 'voicing'. Having also enjoyed quick bursts with other components, including recent Quad valve amps, a brace of CD players, a change or two of

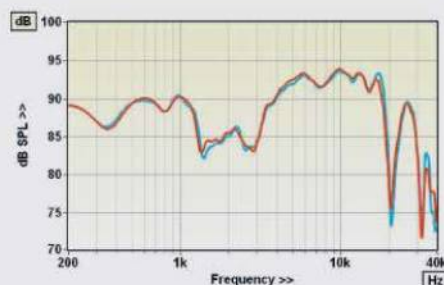
wires, it's possible to tame the slight sizzle at the top, or free up the bass a trace more.

What revealed all, however, was a *computer*. Dazzled as I am by the 24-bit/44.1kHz versions of the Beatles' stereo collection via USB, I fed the material into a system (using Winamp Pro) to hear what are the most revealing rhythm recordings to come my way in years – the remastered bass and percussion tell so much about a system's capability that they've become my most dependable tool. And it boils down to this: for the Quatuors' astonishing detail and clarity, you sacrifice a hint of the natural acoustic. It's subtle, and it's a matter of taste or prejudice, but it is unmistakable. ☺

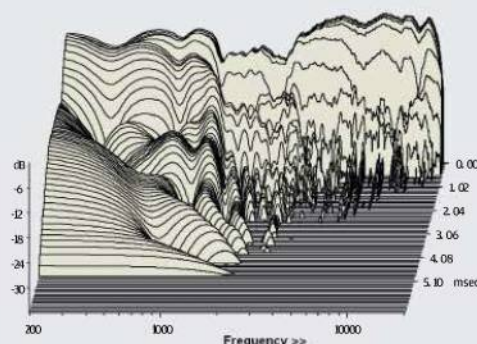
HI-FI NEWS VERDICT

For perceived value alone, the Triangles score highly: impressive-looking, with superb construction and finish, and nice touches like magnetic grille catches and huge binding posts, all reminding you why you shelled out nearly £11k. In keeping with other A-list French speaker makers, the sound is bold, with immense scale, almost sounding like horns tamed of their brashness. One for consideration, rather than a shoo-in.

Sound Quality: 78%



ABOVE: Forward response shows a deep and wide trough in output through the presence region



ABOVE: Presence trough is visible in the waterfall plot but cabinet and driver resonances are well damped

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	91.6dB/90.9dB/89.7dB
Impedance modulus min/max (20Hz–20kHz)	2.6ohm @ 116Hz 27.7ohm @ 55Hz
Impedance phase min/max (20Hz–20kHz)	-72° @ 70Hz 50° @ 21Hz
Pair matching (200Hz–20kHz)	± 2.2 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	53Hz / 19.1kHz/19.9kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.2% / 0.2% / 0.1%
Dimensions (HWD)	1338x371x423mm

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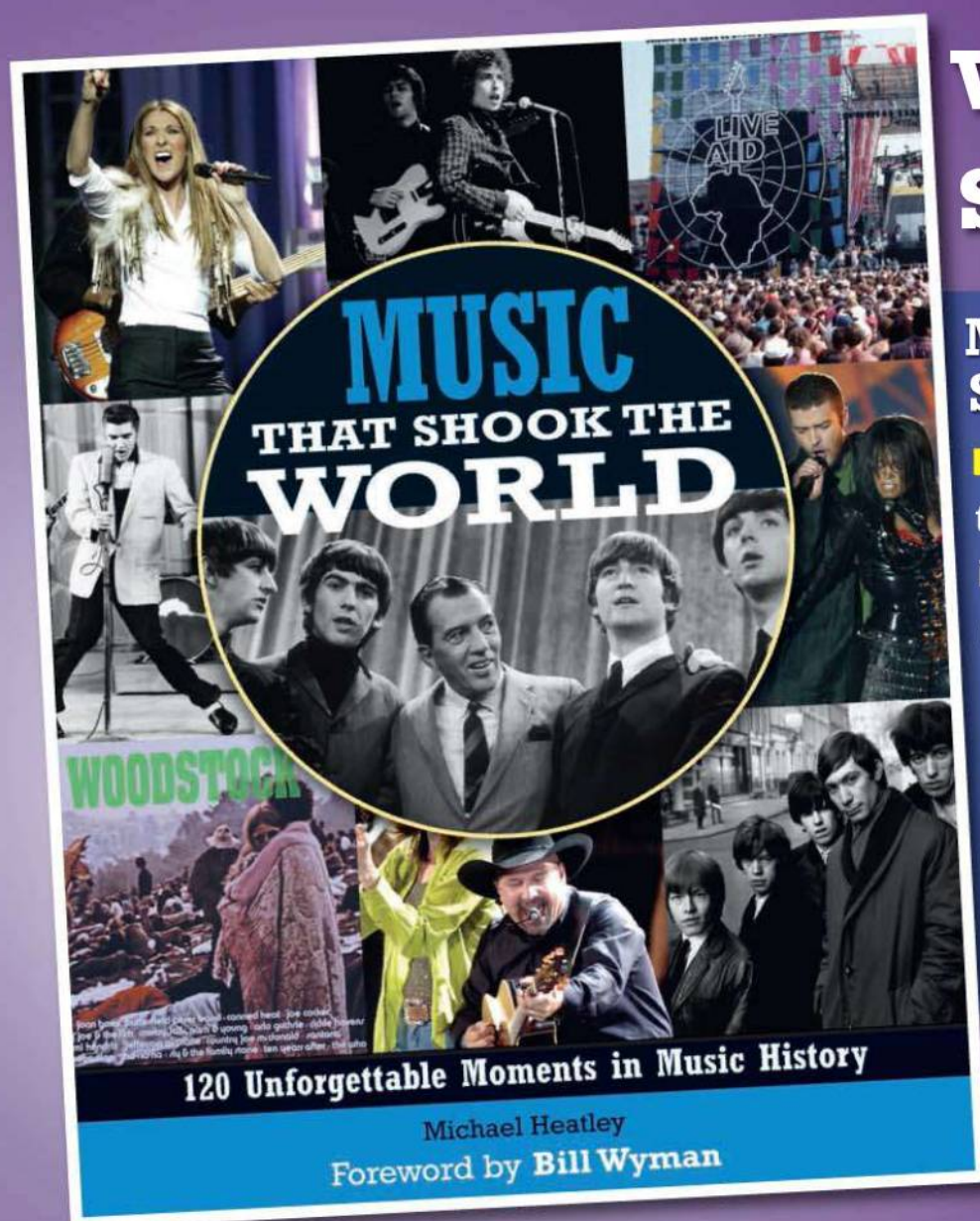
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Vinyl Frontier

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

It's folk and country under the spotlight this month as **Paul Hawkins** brings you his round-up of what's new in the world of brand new vinyl re-issues and releases

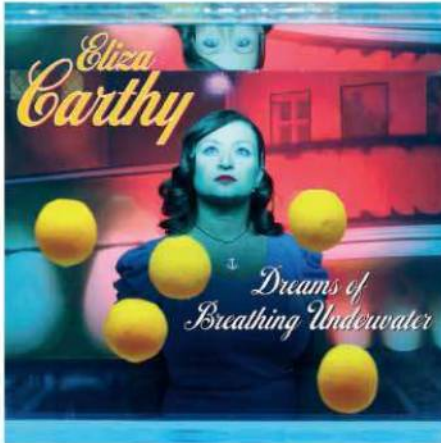
Launched at the tail end of 2009, Three Black Feathers is a label dedicated to re-issuing classic and 'lost' contemporary folk albums on high quality heavyweight vinyl (see www.threeblackfeathers.co.uk). The first batch of releases includes some great titles by such luminaries of the British folk scene as Nic Jones, Eliza Carthy, Dick Gaughan, Lal Waterson and Martin Simpson. Further releases are planned from artists including Shirley Collins, June Tabor, Anne Briggs, John Tams and Waterson:Carthy.

All are artists who originally released albums for Topic Records, the world's oldest independent record label, which celebrated its 70th anniversary in 2009. All the re-issues here have been re-mastered from the analogue masters (where available) at Abbey Road, and pressed on high quality 200g vinyl for the ultimate in audiophile quality. Here's a closer look at currently available titles.

PICK UP A PENGUIN...

Making a name for himself as an extremely capable folk guitarist and part of the late '60s folk revival, Nic Jones cut his teeth with an album of traditional ballads and songs in 1970, called simply, *Ballads And Songs*. Confident enough in his songwriting and by now, boasting a well-honed guitar style influenced by Martin Carthy, he followed up this album only a year later with the eponymously titled *Nic Jones*.

Yet it was to take Nic six years to come up with his third LP, *From The Devil*



➔ On vinyl at last – *Dreams...* from Mercury Prize-nominated Carthy

A Stranger, another confident album, released when Nic was in demand as a backing musician by the likes of Richard Thompson and June Tabor.

Again a follow up LP took a while to appear, but ten years into his recording career Jones came up with something special: a sublime collection of tunes called *Penguin Eggs*. The album went on to win 'Folk Album Of The Year' in *Melody Maker* that year, and went down in UK folk music history as a classic. Indeed, the opening track 'Canadee-I-O' was later recorded by Bob Dylan [see p70], appearing on his 1992 album, *Good As I Been To You*.

While other albums of the era might sound a little feeble and dated today, *Penguin Eggs* [TBFLP001] is as relevant as it has ever been. Consummate guitar work rich in style and expression displayed a virtuosity we'd not seen since Django Reinhardt – albeit in a completely different genre. When coupled with Nic's extraordinary vocal delivery, we're presented with a rare synergy. Direct and precise, yet fragile and lenient on its subject, Jones takes us on a sublime journey through the ancient art of storytelling, that is as captivating on this heavyweight re-issue as it was on its 1980 original.

A magnum opus indeed, and sadly a swan song, as a car accident in 1982 prevented Nic Jones from ever following up this masterpiece.

The sleeve notes contain a new interview with Jones about the making

PAUL HAWKINS

Paul Hawkins is co-owner of independent record store Diverse Music and the company's mail-order arm, Diverse Vinyl – now the UK's largest independent retailer of brand new LP titles. Paul also manages Diverse Records, overseeing the production of many audiophile vinyl LPs by an eclectic range of artists. See www.diverserecords.com for more.

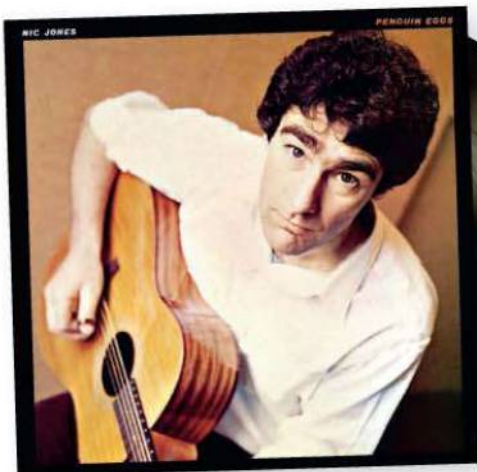


of the album, and an extensive critical appraisal by Colin Irwin, *Mojo* magazine's folk correspondent and one of the UK's leading authorities on the genre. There are also fresh portraits of Jones at his home in Devon, as well as archive photo outtakes from the *Penguin Eggs* sessions. The LP has been pressed in a strictly limited-edition run of 1000 copies.

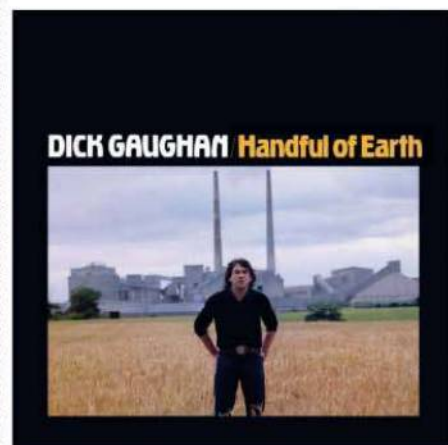
ELIZA CARTHY: UNDERWATER

Her back catalogue has been criminally absent in the vinyl racks for too long, so it really is a delight to see this stunning modern folk album available on LP at last. Eliza Carthy knows her place in the history of UK folk music, but she also knows how to stir things up! Few artists can get away with that in a genre that's perceived as traditional and resistant to change.

As the daughter of folk stalwarts Martin Carthy and Norma Waterson, music was in Eliza's blood. Twelve albums and countless appearances on other family members' projects stand testament to her ability as a violinist. But she's never been afraid to acknowledge her love for other genres of music – particularly rock and the urban dance music of the day. This saw her bring something of a feisty punk ethic to the sedate world of folk rock as it entered the



➔ Nic Jones' *Penguin Eggs* – a folk classic now released on 200g vinyl



➔ From 1981, *Handful Of Earth* – one of the British folk scene's best LPs

21st century, pulling many a new listener into the contemporary side of folk.

She fuses her many passions brilliantly on *Dreams Of Breathing Underwater* [TBFLP002]. It's a typically bold album, full of surprises: from Mariachi horns and flamenco percussion on the fantastic 'Mr Magnifico' to the '60s jump-jive feel of 'Little Bigman'. Then there's the guitar feedback versus broken techno beats on 'Simple Things'. It's an experimental LP, but the songwriting remains consistent, drawing from real life and experience that is at times deeply personal.

The stunning artwork by John Haxby looked great as a CD-sized full colour booklet, but looks even more impressive in its 12-page, 12x12in format, the label deciding to include all the pages in proportion rather than collate the artwork at its standard size as many other labels would! Then there's the full colour glossy gatefold sleeve, featuring an additional set of notes, including a new interview with Carthy, as well as photo outtakes from the *Dreams...* sessions and an extensive critical appraisal by Colin Irwin. And if that's not enough, the LP also comes with a bonus 7in single featuring two unreleased tracks!

HANDFUL OF EARTH

As if *Penguin Eggs* wasn't enough, Three Black Feathers pulls no punches with its third release, crowned 'Album Of The Decade' by *Folk Roots* magazine in the 1980s. In a career that mirrors that of Nic Jones, Dick Gaughan started his recording career in the early '70s, and was in and out of bands throughout that decade – including Boys Of The Lough and Five Had Reel. However, it's his solo output that will always be held in the highest regard, and none more so than *Handful Of Earth* [TBFLP003] from 1981.

The album offers many a traditional tune, although reworked and embellished



with Dick's precise guitar work and modern arrangements. The political landscape of the early '80s was a bountiful source for protest singers, although Dick's more thought provoking approach paired appropriate traditional folk songs to the mood of the day. The more contemporary 'Song For Ireland' is a standout moment, while Dick's reading of 'Both Sides Of The Tweed', which tackles government resistance to the devolution process in Scotland and Wales, is one of the LP's highlights. The new sleeve notes that accompany the re-released heavyweight LP contain a candid and entertaining new interview with Gaughan about the making of the album in which he dismisses it as 'nothing special'. We beg to differ!

➔ **Prodigal Son** – classic folk and blues tunes from Martin Simpson, voted BBC Folk Album Of The Year in 2008

While Lal continued to appear on the odd album throughout the decade, illness and the birth of her son Oliver saw the singer take a back seat throughout the 1980s, while Mike and Norma continued to maintain the Waterson name in the

changing world of folk music.

Oliver's own burgeoning career in the family business was enough to coax Lal back into the studio in the mid 1990s. He took

'The Eliza Carthy LP also comes with a bonus 7in single'

to the guitar at an early age, and their closeness as mother and son is equalled in their ability to read each other perfectly in the studio, Lal's years and lyrical experience being the perfect accompaniment to Oliver's atmospheric guitar work.

Lal's brother-in-law Martin Carthy duels with Oliver on 'How Can I Leave', which proves a standout moment. A last addition to an astonishing back catalogue rather than just a footnote in an extraordinary career – Lal sadly passed away before the release of the follow up album.

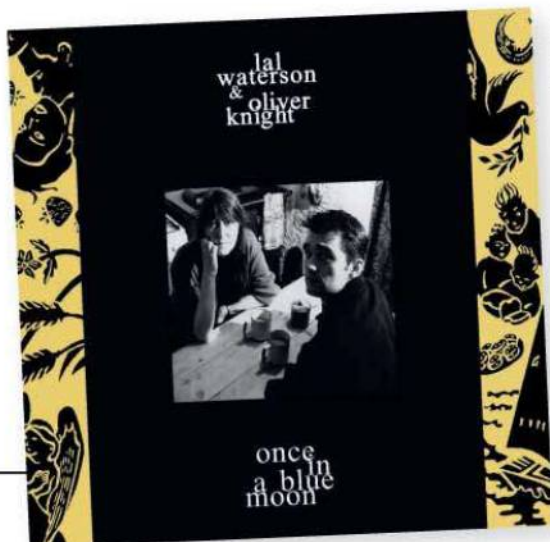
PRODIGAL SON

Martin Simpson joined the UK folk scene in the mid '70s and had an immediate impact as a contemporary artist, pulling influences from both sides of the Atlantic. ➔

ONCE IN A BLUE MOON

Having carved a niche in the UK folk scene in the late 1960s with their close-knit harmonies and mostly unaccompanied songs, it became clear that the abundant talent in The Watsonsons could not be contained in just one group. Lal and Mike went on to record the outstanding British folk classic 'Bright Phoebus' in 1972, featuring many of the family and the cream of the scene, including a few members of Fairport Convention.

➔ Now on 180g vinyl, cult 1996 album from Lal Waterson



Vinyl Frontier

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Cutting his debut in 1976, his fresh new ideas were soon in demand with groups such as Steeleye Span and The Albion Band both benefitting from his skills on stage and in the studio. However, it was his relationship with June Tabor that really brought the best out of Martin, and their joint effort *A Cut Above* [TBFLP005] is a recognised classic.

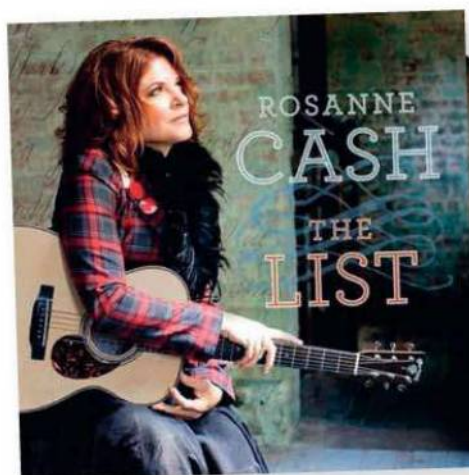
Like his peer Richard Thompson, a fascination with American roots saw the musician up sticks and move Stateside, where he was able to absorb himself in roots, blues and country guitar technique, keeping the spirit of Woody Guthrie very much alive! He's been incredibly prolific, now boasting a back catalogue of some 20 albums, but it's his 2007 album, *Prodigal Son*, that Three Black Feathers has chosen as its fifth release.

It's an understated, reflective, yet accomplished set with a mixture of styles – as we've come to expect. Blues and roots fuse effortlessly with classic folk, albeit with a modern and contemporary twist.

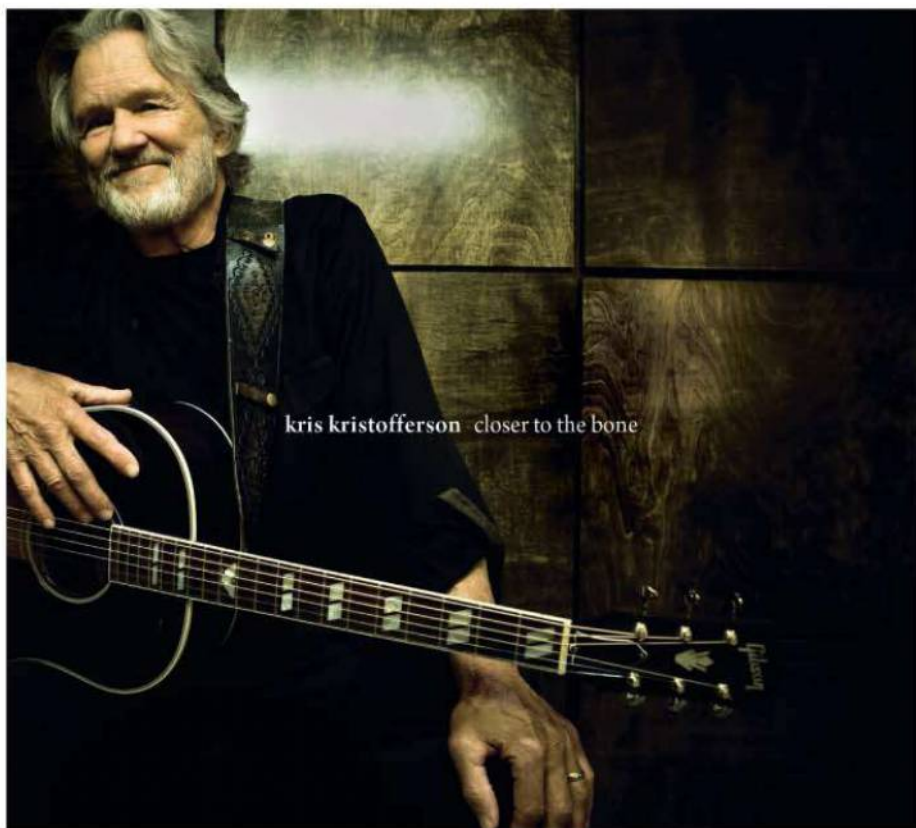
Guests on the album include Danny Thompson on upright bass (the only man in music to dwarf one of those instruments), the young but talented multi-instrumentalist Andy Cutting on melodeon, Alistair Anderson on concertina and Northumbrian pipes and the sublime vocals of Kate Rusby and Jackson Browne. If you've not strayed into Martin Simpson's world yet, there's no better place to start!

ROSANNE CASH: THE LIST

Away from the British folk scene there are a number of other re-releases worth keeping an eye out for over the coming months. It is great to report that the latest album from Rosanne Cash, *The List*, is now out on vinyl. Memphis-born Cash has produced



➔ *The List* – 'Sea Of Heartbreak' now nominated for a 2010 Grammy



some of the finest music to come out of the US in the last 20 years, as is proved by *King's Record Shop* from 1987 and 1990's *Interiors* – to name but two. This new release is a tribute to her father and features many of Johnny Cash's favourite songs. As she states in a recent interview: 'These songs are in my DNA'.

She brings her own feel and emotion to these classic songs, duetting with Bruce Springsteen on Don Gibson's mercurial 'Sea of Heartbreak' while 'Heartaches By The Number' features the ubiquitous Elvis Costello. The hard times she has endured in the last few years, with the deaths of her father, stepmother and birth

mother followed by recent successful brain surgery have given Rosanne conflicting emotions which, and with every right, she has poured into these songs. Others helping out include Neko Case, Jeff Tweedy and Rufus Wainwright on performances that include 'Motherless Children', 'Long Black Veil' and 'Miss The Mississippi And You'. Her husband John Leventhal produced the album, and adds some guitar work. The title comes from a list of 100 classic American songs that her father gave her back in the '70s, when he was worried about Rosanne's rock 'n' roll sensibilities. He needn't have

➔ 'Making sense of life at this end of the game' – *Close To The Bone*

been concerned! Available now, courtesy of Manhattan Records [AMAN 96576].

CLOSER TO THE BONE

Country legend Kris Kristofferson follows up his 2006 LP *This Old Road* with a brand new release on the New West label. Kris sees this album as the continuation of a more personal approach to songwriting, first aired on *This Old Road*.

Kris says, '*Close To The Bone* is a reflective album. It's about making sense of life at this end of the game. I used to do records about a year apart with music covering issues of human rights, military aggression or whatever was going on in the world. These last two records have been more about my own life.'

To reflect the mood of the songs, Kristofferson plays acoustic guitar predominantly, with the rest of the band made up of Wallflowers/Foo Fighters keyboardist Rami Jaffee, drummer Jim Keltner plus Don Was on bass, who also produced the album. The set offers a few poignant moments for Kris, in the inclusion of the final recordings by the late Stephen Bruton, a close friend who passed away in May. Bruton played guitar and co-wrote the track 'From Here To Forever'. ☺



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BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Jeff Buckley: *Grace* (Limited Edition)

There are few 'Greatest Ever' lists that fail to feature Jeff Buckley's *Grace*. **Steve Sutherland** brings you the background story, now that it's reissued on 180g vinyl

Way back in the 1980s there used to be this brilliant band called The Cocteau Twins. They had nothing to do with the great French film-maker Jean Cocteau whose name they'd stolen and, come to think of it, they weren't even twins. In fact, they were Robin Guthrie and Elizabeth Fraser, two lovers from Grangemouth, a grim petrochemical town in Stirlingshire, Scotland plus, by the time I got to know them, a Londoner called Simon Raymonde, whose dad did the strings and stuff for old Dusty Springfield and Walker Brothers hits. Simon played bass, Robin played guitar with loads of dreamy flange 'cos he said he couldn't really play properly, and Liz sang from her heart like no other, crucified with fright in front of an audience. Liz was too scared to write her own lyrics too so she composed songs and sang them in her own, secret language. I called them the

voice of God in a review which annoyed the band so much that Liz bit me on the arm outside a nightclub and drew blood through my jacket. In recompense I lent them my VW Beetle while I was away on holiday and they returned it with a pile of parking tickets and a bottle of Jack Daniels tucked under the passenger seat.

BRIEF ENCOUNTER

But that's a whole other story. Why I'm telling you this is because the Cocteau Twins' seventh LP, their last for the 4AD label, was called *Heaven Or Las Vegas* and I was flown over to the States to witness them perform at the Aladdin, a down-at-heel gaming and golf resort on the legendary Nevada strip that, in its glory days, had played host to Elvis Presley's marriage to Priscilla before eventually being dynamited to make way for another monstrous franchise in the Planet Hollywood chain.

Anyway, a few days before the Aladdin gig – this was in December 1990 – the Cocteau

Twins performed magnificently in the faded grandeur of the Hollywood Palladium and it was after this gig, in a cramped dressing room backstage, that I was introduced to Jeff Buckley.

Jeff was 24 at the time but looked much younger and seemed very shy. As I recall he'd come to the gig with his mum, Mary, and it was she who did most of the talking, thanking the band for putting them on the guest list and complimenting them on their version of her ex-husband Tim Buckley's wonderful 'Song To The Siren', the centrepiece of his libidinous 1970 album *Starsailor* which they'd recorded with great sensitivity under the pseudonym This Mortal Coil in 1983.

I can't claim that we had much of a conversation, Jeff and I, but he did tell me that he only met his dad once, in 1975, just two months before the singer went

STEVE SUTHERLAND

Steve edited *NME* from 1992-2000, the Britpop years, launching *NME.com* and reviving the NME Awards. Previously he was Assistant Editor on *Melody Maker*. Among his many adventures he has been physically threatened by Axl Rose, hung out awhile with Jerry Garcia and had a drink or two with Keith Richards...



and died of a smack overdose at the ripe old age of 28 in a post tour binge that turned tragically wrong.

Tim had walked out on his wife and son in 1966, just after Jeff was born, his musical monument to his guilt being the soaring 'I Never Asked To Be Your Mountain' off his 1967 *Hello & Goodbye* album (you can check it out on the recent superb Amorphous Androgynous mix CD, *A Monstrous Psychedelic Bubble Exploding In Your Mind*, on Platipus/Groove records).

I remember thinking that young Jeff sure looked a lot like his dad. I'd seen Buckley senior perform at the inaugural Knebworth bash in 1974 on a bill with The Allman and Doobie Brothers, Van Morrison, The Mahavishnu Orchestra and The Sensational Alex Harvey Band. There was no mistaking those big soulful eyes, the twinkling image of the ones that had made Chrissie Hynde go so weak at the knees when she'd interviewed Jeff's pa back in her brief pre-Pretenders stint as an *NME* stringer in Detroit.

'For all the album's influences, *Grace* had no precedents'

MAKING A MARK

Jeff went on to tell me that he was trying to make a go of it in the music industry and I probably nodded

sympathetically in the way one did when introduced to those mixed-up members of the Julian Lennon club, pitiful young dudes forever doomed to squirm in the shadows of their infamous dads. And that was about it. I went off in search of another beer. And Jeff? Well, Jeff went off and, within four years, he'd seduced Elizabeth on the rebound from Robin, taken to playing gigs bare-chested in a pair of bright red braces and made a killer album that kinda changed the world.

The album was called *Grace* and here's what *NME*'s John Mulvey had to say about it in a 9/10 review in August '94: 'Few fly so close to the sun as Jeff Buckley. He howls and hums and croons and screams, twisting round and round like a vocal stunt



➔ 'A killer album that kinda changed the world...' Jeff Buckley pictured in 1994, the year that *Grace* was released



➔ Priced £18.90, Sony Music's 180g re-release of Jeff Buckley's *Grace* is available at www.diversevinyl.com

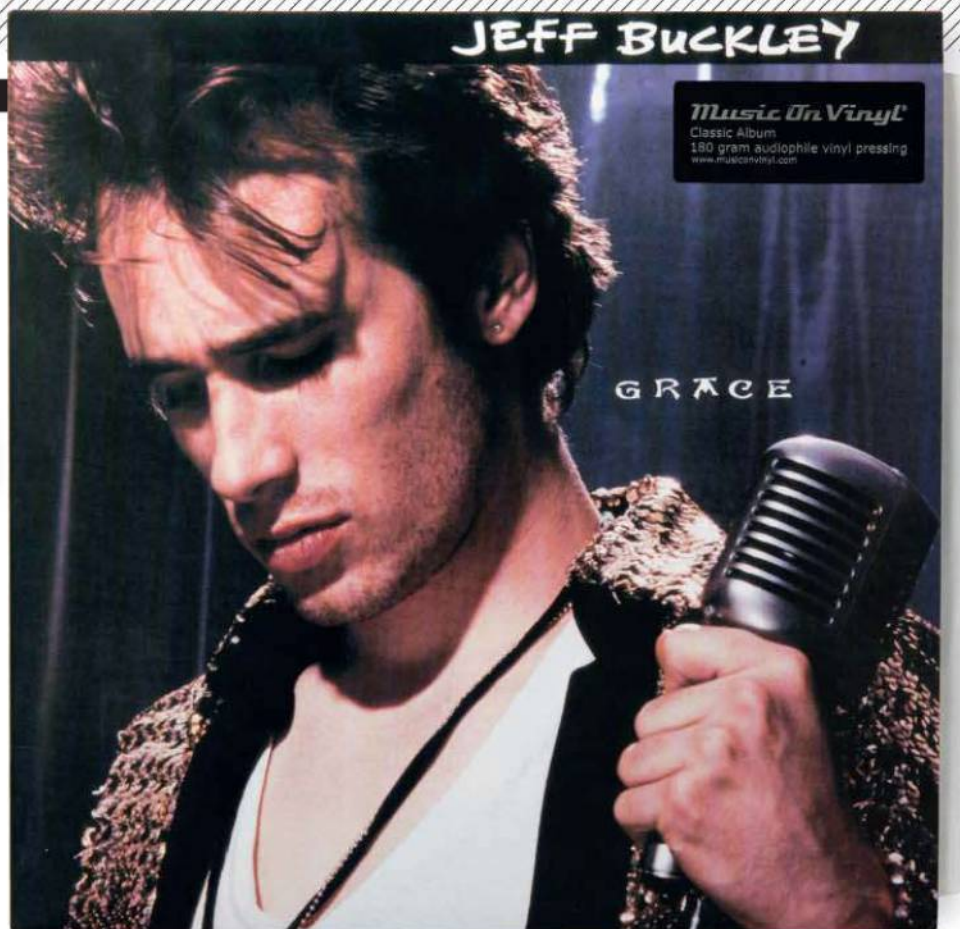
pilot. He packs his album with strumming, crashing and soaring guitars, string sections, harmoniums, tablas and anything else that comes to hand. He takes more wild, foolhardy risks in the space of one single song than most allegedly brave artists dare in a career... the ambition of *Grace* is staggering...

Mr Mulvey wasn't alone. Taylor Parkes in *Melody Maker* opined: 'It's a voice... drawn out like a slow-stretched bolus of heavenly bubblegum... (a voice) that leaps tall buildings in a single bound, smells of sex and Chanel... the point at which others are struck dumb with rapture is the moment Jeff Buckley finds his voice and starts singing...'

BLUSHING AND BROODING

While comparisons with his father's vocal experimentation were inevitable, rapt listeners were also delighted to discover Led Zeppelin, The Smiths, Edith Piaf and My Bloody Valentine bleeding from the grooves of an extraordinary work that, amongst its brooding originals like 'Mojo Pin' and 'Dream Brother', also showcased three deeply interpretative cover versions: surely the definitive take on Leonard Cohen's 'Hallelujah', a hushed visitation to Benjamin Britten's 'Corpus Christi Carol' and a blushing rearrangement of 'Lilac Wine', a standard best served up, until Jeff came along, by Ms Nina Simone.

Mostly recorded at Bearsville Studios in Woodstock, upstate New York and co-produced by Andy Wallace who'd recently mixed Nirvana's breakthrough album *Nevermind*, for all its influences, *Grace* really had no precedents. It's hard to say what it was intended to be. It wasn't folk, or rock, or jazz, or soul... and yet it was all of these things. Was it happy or sad? Bitter or contented? Ancient or innocent? Serious or showy? Sexual or spiritual? Pure at heart or bursting with



lust? The critics at the time marvelled at the way the album would change mood from one moment to the next but that's not strictly accurate because *Grace* was as elemental as a storm at sea, perilous and raging on the surface above great, peaceful, darkly beautiful depths.

Most of all, I think, *Grace* was liberating. Thom Yorke, for one, was deeply smitten and immediately set Radiohead on a new course, released from rock's shackles by Buckley's example to become the free spirits we admire today. Rufus Wainwright was another, awed by *Grace* into discovering his own voice. Antony Hegarty of Antony & The Johnsons yet another for whom *Grace* was a road to Damascus.

GLOWING REVIEWS

It didn't sell by the truckload at the time – it was way too weird for that – but the reviews were unanimously glowing and Jeff basked in the glory, touring the world and slowly planning his next *magnum opus*. It was to be called *My Sweetheart The Drunk* and was scheduled to be recorded in Memphis but initial sessions with Television's Tom Verlaine at the desk proved frustrating so Jeff called on Andy Wallace to return and got back down to some serious writing.

On the evening of May the 29th, 1997, while he was waiting for his band to fly in from New York, Jeff went for a wander

along the banks of Wolf River Harbour, a tributary of the Mississippi with a roadie pal called Keith Foti. On a whim, Jeff jumped in for a swim, fully clothed, still with his boots on. He was singing the chorus to Led Zeppelin's 'Whole Lotta Love' when a tugboat passed. Foti grabbed the radio and guitar they'd been carrying to protect them from the tugboat's wake and when he looked up, Jeff was gone.

They pulled his body from the river six days later, his death as random and unexpected as the sole album he left as his stake in eternity. ☹

RE-RELEASE VERDICT

The original pressing of *Grace* is full-sounding and certainly not short on dynamics, so this re-release – part of Sony Music's 'Music On Vinyl Series' [MOVLPO07] – has to fight hard to justify its premium price. But it delivers. From the grit 'n' groove of 'Eternal Life' to the cavernous ragga lilt of closing track 'Dream Brother', bass heft is increased, frequency response more extended and the physical dimensions of instruments are more convincingly realised. Surface noise is extremely low, too. **HFN**

Sound Quality: 85%





featuring I WANT YOU and
RAINY DAY WOMEN Nos. 12 & 35

Bob Dylan *Blonde On Blonde*

It was a clash of musical cultures when Bob Dylan and a couple of trusted conscripts flew south from New York to record with Nashville's finest session men, many of whom didn't know who Dylan was. The result was an LP that was to change the course of rock
Words: **Johnny Black**

Nashville, Tennessee, lies 750 miles south west of Bob Dylan's first stomping ground, New York City. It's just a two-hour plane ride but, when Dylan flew down in February 1966 to record what would become his masterpiece, *Blonde On Blonde*, the two cities were worlds apart.

'Anybody you ask will say that Nashville began when Dylan came down here. That's the way I feel about it, too,' states Bob Johnston, who produced not just six Bob Dylan albums but also classics by Simon & Garfunkel, Leonard Cohen, Johnny Cash and too many more to mention. 'Nashville was a different place before that. The producers and record people ran the business with an iron fist. They did what they wanted to, and the artist was at their beck and call.'

Dylan and Johnston turned that relationship on its head.

BOB WHO?

'We didn't know who Bob Dylan was,' admits guitarist Wayne Moss, one of the hot Nashville sessioners whose astonishing instrumental dexterity elevated *Blonde On Blonde* from what everybody

was hoping for – Dylan's best album yet – into one of the greatest albums in the entire rock canon. Indeed, many critics now feel that the recordings Dylan and Johnston made together produced the very first albums that could be described with just that one word – rock.

Originally, in the early '60s, Dylan had been hailed as the saviour of

The musicians
that played
there didn't
like outsiders'

folk music, but then The Byrds gave him his first American No 1 single in June 1965 with their jangling cover of his song 'Mr Tambourine Man', which turned him on to the potential of the folk-rock blend.

The Dylan/Johnston collaboration meshed perfectly on Dylan's first

completely electric album *Highway 61 Revisited*.

However, when they re-convened in Columbia Studio A in New York City on November 30th, 1965, the magic

seemed to have dissipated. Fourteen takes of Dylan's lengthy opus 'Visions Of Johanna' were laid down but none was deemed usable. A successful take of the sardonic 'One Of Us Must Know (Sooner Or Later)' was recorded on the 25th, but the next four sessions were all either cancelled or unfruitful. Johnston, wasn't ready to throw in the towel.



Dylan on stage in New York, 1963; Nashville was a world apart

The blurry picture on the outside of the LP sleeve was chosen by Dylan

Dylan with Joan Baez in 1963; was she the inspiration for 'Visions Of Johanna'?

Label and inside sleeve of 1966 LP; the 1968 issue (below) saw the picture of actress Claudia Cardinale removed

'I had recorded quite a few sessions in Nashville,' he points out, 'and I knew that the players I used down there would be great for cutting Dylan's songs.'

DOWN TO NASHVILLE...

Dylan was initially sceptical, but on February the 14th the first session began in Columbia's Nashville studio on Music Row. Dylan's favoured organist, Al Kooper, was then touring with his band The Blues Project, so he flew down from Columbus, Ohio.

'Bob had both me and Robbie Robertson (of The Band) on those sessions, to increase his comfort zone,' explains Kooper, 'because we had worked with him in New York.'

Two additional guitarists, Jerry Kennedy and Joe South, converged on Nashville from Miami and Atlanta respectively. The core of the studio musicians, however, were all local Nashville hotshots. 'Bob Johnston had used us on many sessions'



PRODUCTION NOTES

When producer Bob Johnston first moved down to Columbia's Nashville studios, some years before *Blonde On Blonde*, he pulled out all of the small sound booths which had been installed to minimise sound leakage. He wanted, he says, to create a space where the players could see each other and function in a more organic way. Session guitarist Wayne Moss points out, however, that even though the Nashville studio thus became virtually an identical replica of Columbia's New York facility, the sound was nowhere near as good during the *Blonde On Blonde* sessions because of, you guessed it, leakage. 'Charlie McCoy's bass was leaking into Dylan's voice and guitar mikes,' he recalls, 'so he had to run his bass directly into the desk and monitor what he was playing on headphones. We couldn't hear any bass in the room at all.'

Bob Johnston's main concern, however, was to get a good recording of Dylan. 'I always used three microphones on Dylan,' he says, 'cause his head spun around so much. I used a big [Neumann] U47 on him, same as I used on Johnny Cash later. I would put a baffle over the top of his guitar because he played while he sang lead vocals. I didn't use any EQ on the band, just set the mics up right to make each instrument sound the best it could. I used some EQ on Dylan's voice.'

Although nominally a keyboardist, Al Kooper describes his primary function during the *Blonde On Blonde* sessions as being Dylan's music director. 'I asked him if I could go to the studio an hour before him and teach the songs to the band, so that when Bob got there we would be ready to go... I would teach the band the arrangements that I had in my head for these songs and, of course, they would get them instantly.'

before Dylan,' explains guitarist Wayne Moss. 'Charlie McCoy played bass and trumpet and was the leader of the band. We had Kenneth Buttrey, the world's greatest drummer, and Hargus Robbins, the blind piano player.'

Although Robbie Robertson had worked with Dylan before, he felt a need to prove himself to the Nashville elite. 'It was very clique-ish. The musicians that played on sessions there didn't like outsiders coming in... it was kind of like, "What do we need him for?"'

It wasn't until he contributed the impressive bluesy licks on 'Obviously 5 Believers' that he felt he had won them over. 'I was doing something that none of them did, so I don't think they felt I was treading on their territory.'

Kooper too felt intimidated by just how far ahead of him the Nashville sessioneers were as players. 'In "I Want You", for instance, I had the opening guitar lick in my head and Wayne Moss came up with that amazing sixteenth note run that comes out of it later. I almost fell off the chair when he did that. Nobody in New York could have done that, or even have thought of doing that.'

REAL BOTTLE

Equally, of course, it's unlikely that anybody in Nashville would ever have come up with the strategy Dylan advanced for the recording of 'Rainy Day Women Nos 12 & 35' – to get the band as drunk as possible before starting. Henry Strzelecki, appointed to play bass, became so pie-eyed he couldn't



stand up. 'Or even sit up,' notes Moss. It was all he could do to lie on the floor and play the bass pedals on the organ with his hands, while Moss took over on bass guitar.

Unsurprisingly, the playing on 'Rainy Day Women' leaves something to be desired, but Dylan undeniably achieved his aim of creating the atmosphere of a crazed

party, with music supplied by a Salvation Army band. Nor was this the only time Dylan's working methods proved completely alien to the Nashvillians.

'Dylan's strategy was to get the band as drunk as possible'

'We'd never worked with anybody who didn't have all their songs written before they came to the studio,' points out Moss, who was stunned when Dylan cut short a session for 'Sad Eyed Lady Of The Lowlands' just minutes after it began, to work on the lyric.

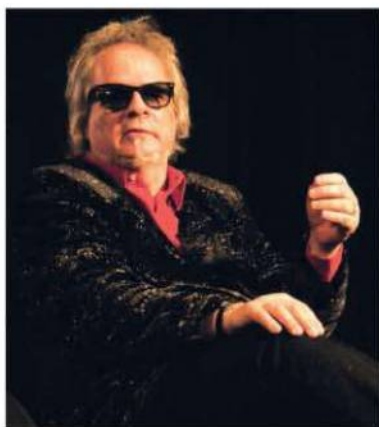
'He told us to take a break at about two thirty, and didn't call us back until about 3am the next morning. Everybody else went down, played ping pong, got something to eat, went to sleep,' remembers Johnston, 'until Dylan came out and said, "Hey, I got that song finished. Is anybody around?"'

'I went and got everybody up. Dylan says, "Well, it goes like this ... G. C. B, dah de dah de dah..." and he walked away. And all these guys, they didn't know what to do. I said, "Play. Don't stop. Just keep playing."'

➔ Dylan in later years with legendary rock guitarist Eric Clapton; *Blonde On Blonde* is felt by many critics to have been the first rock album ever released

➔ Bob Johnston (left), *Blonde On Blonde* producer, pictured in 2009 at the Hotel2Tango Studio in Montreal, Canada

➔ Al Kooper, (who later went on to found Blood Sweat & Tears), was hired as a keyboardist for the sessions but took on the role of musical director



Alternate Format Discography

Eleven minutes later, it was done. 'We played it back and nobody could believe it, because they knew that their lives had changed, Nashville had changed and music had changed.'

It's widely agreed that Dylan's wife at the time, Sara Lownds, was his muse for the epic 'Sad Eyed Lady'. The jury remains out, however, on the inspiration for the album's next-longest song, 'Visions Of Johanna', although Dylan's mentor, friend and sometime lover, Joan Baez, is the likeliest candidate.

The subject of 'Just Like A Woman' is usually assumed to be former Boston debutante turned Andy Warhol superstar Edie Sedgwick, with whom Dylan had enjoyed a brief friendship.

One song that evidently existed for some while before Dylan went to Nashville was '4th Time Around'. Al Kooper, who knew Dylan had played it to the Beatles, told me that he had asked Dylan 'if they'd remarked on how similar it sounded to 'Norwegian Wood', and he said, "When I played it to them, there was no 'Norwegian Wood'."

DOUBLE FIRST

Whether it was Bob Johnston, Nashville, the musicians, or some inexplicable combination of all three, Dylan was spurred into an astonishingly prolific burst of creativity because *Blonde On Blonde* turned out to be not just a great album, but a great double album. As Dylan himself later acknowledged: 'At the time of *Blonde On Blonde*, I was going at a tremendous speed.'

Rock's first double album hit the streets on the 16th of May 1966 (the same day, believe it or not, as The Beach Boys' *Pet Sounds*) and, although it never rose above number nine in America and narrowly missed the top slot over here, the ripples began spreading immediately. Wordsmiths around the world used *Blonde On Blonde* as the spur for their own lyrical flights of fancy. The shift from a market dominated by singles to one dominated by albums was now inevitable, and Dylan's union of rock and country would lead to artists beginning to break down the stylistic divisions that had kept them locked down for so long. ☺



ORIGINAL GATEFOLD LP (1966)

Hailed as rock's first double album, this was released by Columbia Records (USA) and CBS (UK) in both stereo [66012] and mono [C2L 41] mixes. The two versions featured significantly different mixes and track lengths, varying by as much as 50 seconds.

The package was prized not just for its lavish fold-out sleeve but for the fact that photographer Jerry Schatzberg's brooding cover image of Dylan, spread over both exterior surfaces, was out of focus. This remained the subject of debate for many years. Was it a mistake? Was it deliberate? Was it meant to suggest a drug trip?

Schatzberg revealed last year that, 'It was cold and I shook the camera. He (Dylan) chose this image for the album cover.'

Intriguingly, the Australian [SBP-233345/SBP-233346] and New Zealand [SBP-473314/473315] issues of this album featured a slightly different mix, widely regarded as sonically superior, which didn't appear elsewhere until 1968.



CASSETTE (EARLY '70S)

The precise release date of the first cassette version [CBS 40 22130] is uncertain, but the early '70s is a good guess. This was a CBS 'Double Play' single cassette edition, originating in the UK, with the original running order changed to fit the length of tape available.

8-TRACK CARTRIDGE (1974)

Blonde On Blonde showed up as an 8-track [Columbia 18 20 0012] in 1974. The cartridge itself was black, appearing in a slipcase. Dylan

obsessives will already know that the track title, 'Stuck Inside Of Mobile With The Memphis Blues Again', is wrongly shortened by the removal of the last three words, as



it was on the 1966 album. More significantly, though, the first eight bars of the instrumental break have been edited out of 'Sad Eyed Lady Of The Lowlands'. Again, this was a concession to make the album fit the length of the tape.

FIRST CD VERSION (1982)

Although there were CD versions, possibly originating from Japan, available from 1982, the decade was almost over before a North American edition [CGK 841] became widely available. It was based on 1987 mixes by long-established Columbia staff engineer Tim Geelan, with digital mastering handled by his colleague Vic Anesini. By this time, it is said, the original stereo master tapes were worn out from use, obliging Columbia to produce a new stereo mix from the four-track studio master tapes.

For some reason, the European CD [CBS 22130], issued around the same time, shortened most of the songs by a few seconds. 'Sad Eyed Lady Of The Lowlands', presumably because it is the longest track, suffers a 37s edit.

MASTERSOUND SUPER-BIT MAPPED (SBM) GOLD CD (1992)

This edition of *Blonde On Blonde* [CK 53016] hit the shops in a 12x6in book-style Digipak which included a 32-page booklet and featured a remix by yet another Sony staff engineer, Mark Wilder. With 20-bit digital transfers, derived again from the original four-track studio masters, Wilder closely approximated the original stereo vinyl mix, but with noticeably improved sound quality. Wilder's efforts, however,

are undercut by sloppy editing, which saddles several tracks with unusually abrupt fade-outs.

The Japanese edition [SRCS 6682], released a little later, came in a splendid wooden box boasting a gold-plated clasp and hinges, plus an inscribed gold plate.

REMASTERED VINYL 2LP SET (1998)

This was a 180g vinyl re-issue [SVLP 063/Columbia 66012] in a durable 350g sleeve manufactured by the London-based specialists Simply Vinyl. The inside gatefold design reinstates a picture of actress Claudia Cardinale, removed from earlier editions at her request.

SACD (1999)

Based on a remix carried out by Michael Brauer this was widely regarded as the first CD-based edition to sound better than the original vinyl, and a significant step forward from the Gold CD of seven years earlier.

MILLENNIUM EDITION CD (1999)

This UK-originated 'Millennium' limited-edition [MILLEN 15], in a card sleeve reproducing the original album artwork, is considered by many to rival, if not better, sonically, the Mastersound gold CD.

HYBRID SACD (2003)

The 2CD hybrid SACD edition [USA C2H 90325; Europe 512352 6] arrived in 2003, based again on Michael Brauer's 1999 remix, and with the two CDs restoring the original running order of the two 1966 albums. This was done not so much to preserve the integrity of Dylan's original sequence but to make it possible to fit three separate versions (CD stereo, SACD stereo and SACD 5.1 surround sound) on each single SACD disc.

This edition also offers an eight-page booklet with previously unpublished pictures of Dylan from photographer Jerry Schatzberg's 1966 shoot which resulted in the original album photos.

Those who want to know more – including details of the rare 1992 Minidisc, the 2007 'carbon free' edition or last year's Japanese Blu-Spec release – might wish to head over to the ultimate Dylan rarity website at www.searchingforagem.com/1960s/International007.htm.



Roksan

Warranty Notification

Effective 1st November 2009, all Roksan electronics and turntables supplied via authorised dealers are to be covered by a 5 year parts and labour warranty.* As a gesture to existing customers, this will also be extended to all current owners of K2 products.

In an age where product longevity and second hand resale values are constantly under threat, Roksan wish to reward their loyal customers by allowing their warranty to be transferrable from owner to owner. Thus, the warranty stays with the product from initial date of sale to 5 years old as long as it remains within the country of origin.

* terms available upon request



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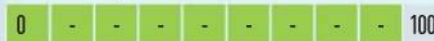


NIRVANA IN UTERO

Original Recordings Group ORG 033 (180g vinyl)

If ever a band born in the post-CD era deserved to be heard on carefully-pressed LPs, it's the quintessential grunge/post-punk indie deity that is Nirvana. Along with their other Geffen titles, *Nevermind* and *MTV Unplugged In New York*, this – their final studio album – has appeared on pristine coloured vinyl, mastered by Bernie Grundman and pressed at RTI. But *In Utero* and *Nevermind* present the listener with a dilemma. Sound quality, as opposed to the actual performance, was never an issue for music this raw. (*Unplugged*, however, always possessed a seductive sound even on CD.) Yet the 180g vinyl favours all three, sounding richer, more layered and better textured than the CDs. **KK**

Sound Quality: 88%



THE BLUES PROJECT/PROJECTIONS

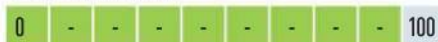


THE BLUES PROJECT Projections

Sundazed LP 5317 (180g vinyl)

Al Kooper was a veteran by the time he joined the Blues Project, but it was this band – and their only studio LP recorded by the definitive line-up – that turned him, guitarist Danny Kalb and the rest of its members into cult figures. 1966's *Projections* oozed the sort of cool that was previously the province of UK revivalists like Mayall's assorted Bluesbreakers and the Yardbirds. And unlike hardcore purist blues bands, these New Yorkers were happy to record original material, with jazz and rock influences, as well as R&B standards. This is the rare mono mix, punchier than the stereo. Hard to believe that this band would morph into Blood Sweat & Tears. **KK**

Sound Quality: 89%

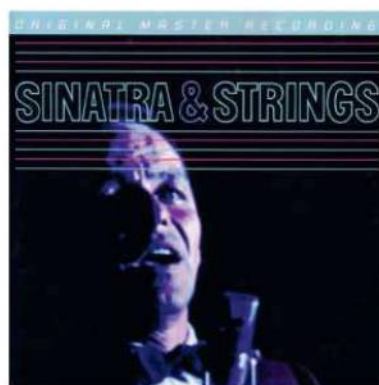
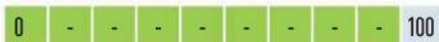


STACEY KENT In Love Again

Pure Pleasure/Candid CIS9786 (180g vinyl)

If you want to know what's in store, this album's sub-title sums it up perfectly: 'The Music of Richard Rodgers'. Kent's tribute to the master, covering material co-written with both Hart and Hammerstein, contains masterworks including 'Manhattan', 'It Never Entered My Mind', 'Bewitched, Bothered and Bewildered' and even *South Pacific*'s 'Bali Ha'i'. The US-born, UK-based singer recorded this in Ardingly in 2001, a smooth backing quintet supplementing Kent's deliciously breathy vocals with a swing redolent of the late 1950s. Overall, it's a tonic for those tired of saying 'they just don't record 'em like they used to,' without having to resort to Ms Krall. **KK**

Sound Quality: 85%

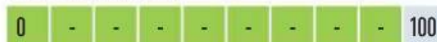


FRANK SINATRA Sinatra & Strings

Mobile Fidelity MFSL 1-313 (180g vinyl)

While cited less often than albums like *Come Fly With Me* or any of those with 'swing' in the title, for many, this 1962 Reprise release is a peerless example of Sinatra at his silkiest and most seductive. Working for the first time with arranger and conductor Don Costa, he delivered a set full of classics from the pens of Harold Arlen, Hoagy Carmichael, Cole Porter, Rodgers and Hammerstein, Jerome Kern and others. Just for his takes of 'Misty', 'All Or Nothing At All', 'Night and Day' and 'Stardust', this LP – especially this particularly gorgeous pressing – is a must-have for any Sinatra devotee, let alone aficionados of perfectly-interpreted standards. **KK**

Sound Quality: 90%





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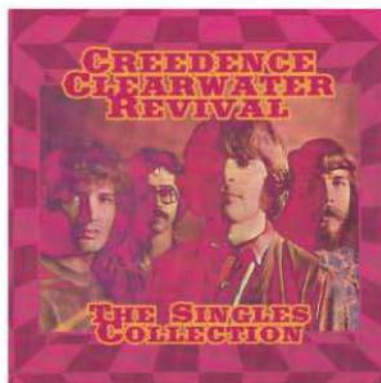
THE BLACK CROWES

...Until The Freeze

Silver Arrow/Angelus (FLAC and MP3 download)

If the absence of a catalogue number throws you, this is the 'bonus' download free to those who purchased the sublime *Before the Frost*... One should welcome this trend because the FLAC version represents a high-quality transition between CD and the 'brave new world' of streaming and downloads: instead of the cost of a second disc, the musicians and the record companies save money while providing the customer with plenty of extra value. The music itself is a continuation of the main disc's recorded-before-a-live audience roots rock 'n' roll, with the band sounding revived, and as raw and loose as they did on their first few albums. *KK*

Sound Quality: 87%



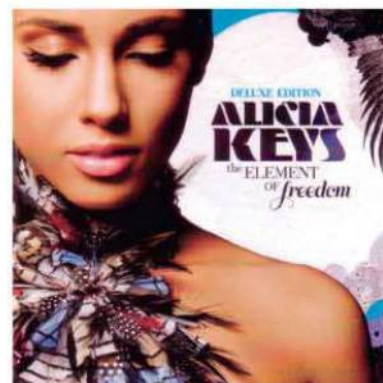
CREEDENCE CLEARWATER REVIVAL

The Singles Collection

Fantasy 31752 (two CDs + DVD)

We should be grateful that Fantasy found its way to putting all of Creedence's singles on two CDs, acknowledging that this was one of the most prolific and consistent hit-making machines of the 1960s. What makes this set so special is the inclusion of a DVD featuring videos to accompany four of their best hits – no mean feat as CCR's career pre-dated the trend for promo films. The quality ranges from rough to acceptable, but as a document, it's invaluable ... especially if you weren't there first time around to appreciate the impact of a swamp-rock version of Marvin Gaye's 'I Heard It Through the Grapevine'. With a bonus poster, one sweet little box set. *KK*

Sound Quality: 86%



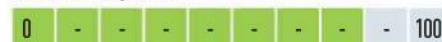
ALICIA KEYS

The Element Of Freedom

Sony Music 88697 (CD plus DVD)

Although this is not her best-received album – it's only her fourth studio effort – the amazing Ms Keys continues to redefine '50s-style R&B-based lounge music for the new millennium. If anyone else had issued this, they'd be hailed as the new soul/pop messiah. Guests on this CD may suggest a move into an edgier realm, but she remains head-and-shoulders above her A-listers pals – in this case, Jay-Z and Beyoncé – for sophistication and elegance. It's the bonus DVD with four filmed studio sessions and a promo video which shows that this woman is a practitioner of stylish, sexy music with its roots not in the once-over-exposed Sade, so much as Billie Holiday. *KK*

Sound Quality: 84%



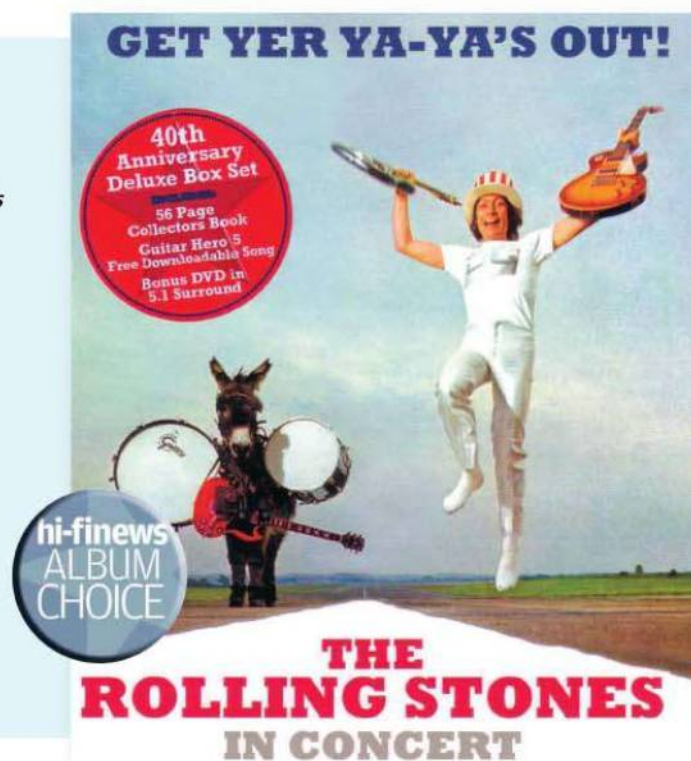
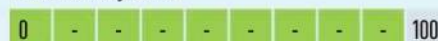
THE ROLLING STONES

Get Yer Ya-Ya's Out

ABKCO 02392 (three CDs + DVD)

This lavish release, like Tom Petty's last month, warrants pride of place not just because *Ya-Ya's* is one of the finest live albums ever: added to the original's ten tracks in this handsome box are another five songs on a second CD, a third CD containing the BB King and Ike & Tina Turner sets, and a bonus DVD running to almost a half hour, that gives you live footage of the bonus tracks (with a choice of stereo or 5.1 surround), plus documentaries. The sound is uniformly excellent, the bonus material as good as the original LP's content, and it remains one of the best-ever snapshots of the still-rocking/still-touring band in its 'first' prime, circa 1969. The icing on the cake? A lavish 58-page hardback with the full story. *KK*

Sound Quality: 88%





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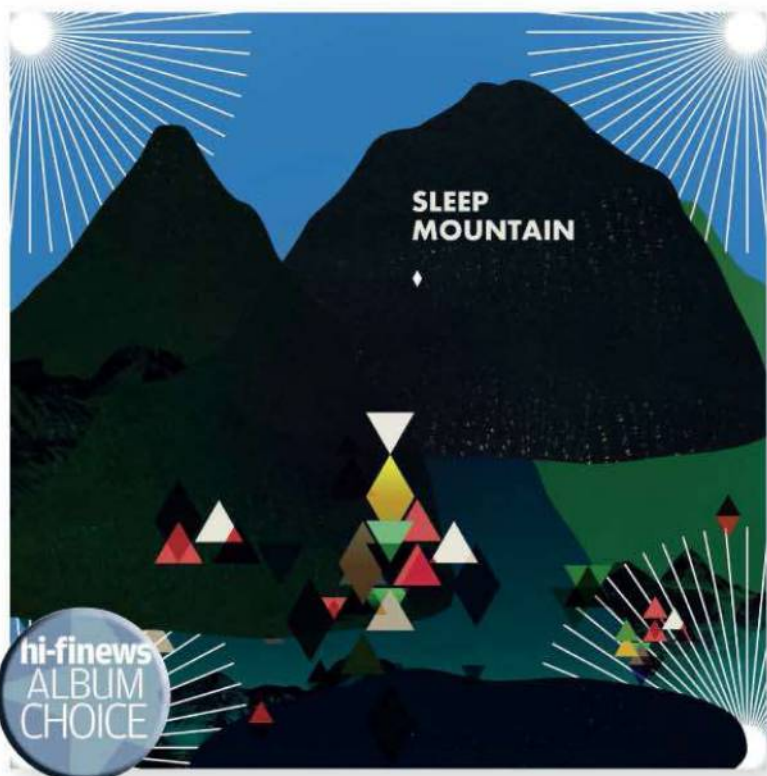
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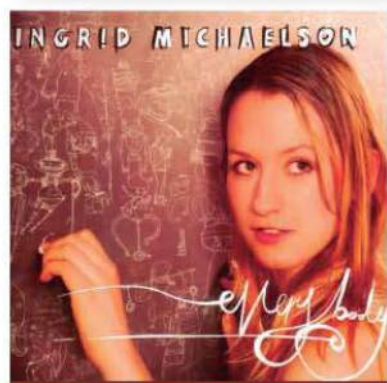
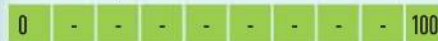
THE KISSAWAY TRAIL

Sleep Mountain

Bella Union Bellacd216p

If Neil Young had never teamed up with Crazy Horse to pursue his minimalist rock 'n' grunge path, he might have ended up sounding not unlike Danish quintet The Kissaway Trail. The orchestral sweep and imaginative arrangements he explored in Buffalo Springfield's *Expecting To Fly* and his solo debut album are here in spades and his vulnerable vocal style is everywhere. Luckily, Kissaway Trail also sound fresh and contemporary, their soaring melodies counterpointed by plucked themes on exotic stringed instruments, enriched by ever-changing ambient drones and propelled by massive drums. Fans of their first album will find this one more focused; newcomers will simply be bowled over. *JBk*

Sound Quality: 92%



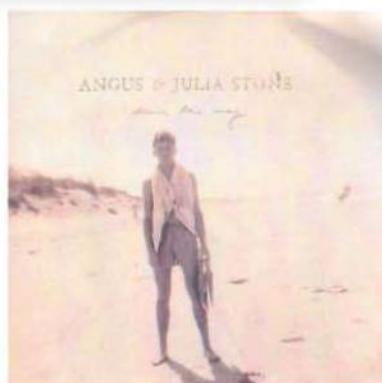
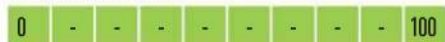
INGRID MICHAELSON

Everybody

Cabin 24 Records CAB24RCD1

You may never have heard of Ingrid Michaelson but you've probably heard her many times. Her songs crop up frequently in TV shows like *Grey's Anatomy* and *One Tree Hill* and she has sold over 250,000 albums and over 800,000 digital downloads without being signed to a major record label. This is her fourth album and it's as fresh and imaginative as her first. The lovely vocal round in 'The Chain' or the subtle use of auto-tune in 'Mountain And The Sea' are worth the price of the CD on their own. Michaelson sticks mostly to the tried and tested female singer-songwriter lyrical concerns – life and love – but she does it better than 99% of the rest. *JBk*

Sound Quality: 93%



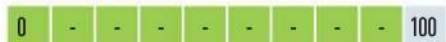
ANGUS AND JULIA STONE

Down The Way

Flock FLOCKCD8

Angus and Julia are a brother/sister act from Newport, along the coast from Sydney, Australia, and this is their second album. Coming three years after a debut that earned a ton of critical acclaim, it's certainly no disappointment. They function by writing and singing their songs separately, but arranging, performing and recording them together. Their weak spot is that Julia tends to sing like a seven year old: a trick some women can pull off without sounding dopey but she can't. She sounds better when she's backing her brother on his smoky, laid-back acoustic finger-picking offerings but, really, when I want this sort of stuff I'd rather have The Weepies. *JBk*

Sound Quality: 85%



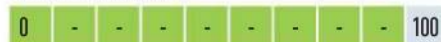
SARAH BLASKO

As Day Follows Night

Dramatico Entertainment DEW 9000168

Having scored big with Katie Melua, Dramatico (owned by Womble-meister Mike Batt) is no doubt hoping to do it again with Australian songbird Blasko, whose nicely crafted songs and ever so slightly cracked voice should appeal to a similar audience. Produced by Bjorn Yttling of acclaimed folk-pop trio Peter, Bjorn and John, it's easy to enjoy. Yttling and Blasko are responsible not just for the quality of the songs and their polished studio sound, but for the tasteful orchestral arrangements that enhance several tracks. Blasko certainly deserves to be heard, but slightly quirky female songsmiths are ten a penny so the competition is fierce. Wish her luck. *JBk*

Sound Quality: 89%





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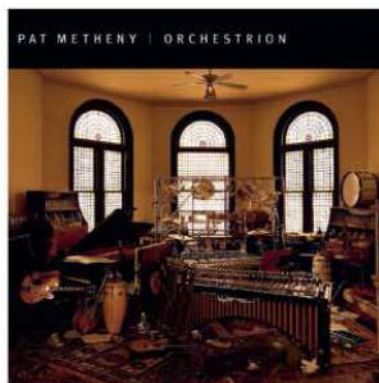
**ABSOLUTE ENSEMBLE
FEATURING JOE ZAWINUL**

Absolute Zawinul

Intuition INT34562

In his last studio recordings, Zawinul worked with dynamic Estonian-born conductor Kristjan Järvi and his innovative Absolute Ensemble chamber orchestra. Järvi wanted to recognise Zawinul's importance as a composer by presenting established pieces in a new way. This meant recreating the keyboardist's complex improvisations note for note while applying the power and colour of the orchestra, not to mention the celebratory vocals of ex-Zap Mama singer Sabine Kabongo. It's sometimes hard to tell where Zawinul ends and Absolute begins, but the whole thing succeeds as a meticulous yet rousing tribute. *SH*

Sound Quality: 85%



PAT METHENY

Orchestrion

Nonesuch 7559 798 473

Named for the multi-instrument arrays that took the player-piano idea further in the 1900s, this project saw Metheny using a host of intriguing robotic instruments, all controlled from his guitar, pen or keyboard. His 'solo ensemble' builds complex, shimmering tapestries of sound around his conventional guitar. There are keyboards, marimbas, every kind of percussion, robot guitars whose notes distinctively zip up to pitch. With deep musicianship, structural mastery and breathtaking command of the technology, Metheny has created a new kind of solo performance, with multiple instruments that still feel real. More astonishing, he does this in concert too. *SH*

Sound Quality: 90%



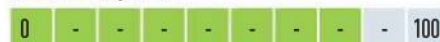
GERALD WILSON ORCHESTRA

Detroit

Mack Avenue MAC 1049

For his six-part suite for the city's 30th jazz festival, Wilson's matchless LA orchestra opens with a blazingly fast and hot minor-key theme that echoes a dark swing-era urgency, then expands beautifully on Benny Golson's 'Along Came Betty'. A long fast blues ends the suite on a high, then come two numbers from the amazing nonagenarian's 'other' orchestra, the New York one. In Wilson's *Monterey Moods*, written for that festival in 2007, the whole suite was based on single motif. But this time, you get excitement, variety, fabulous ensemble playing and star solos from trumpeter Sean Jones, flautist Hubert Laws and son Anthony Wilson on guitar. *SH*

Sound Quality: 80%



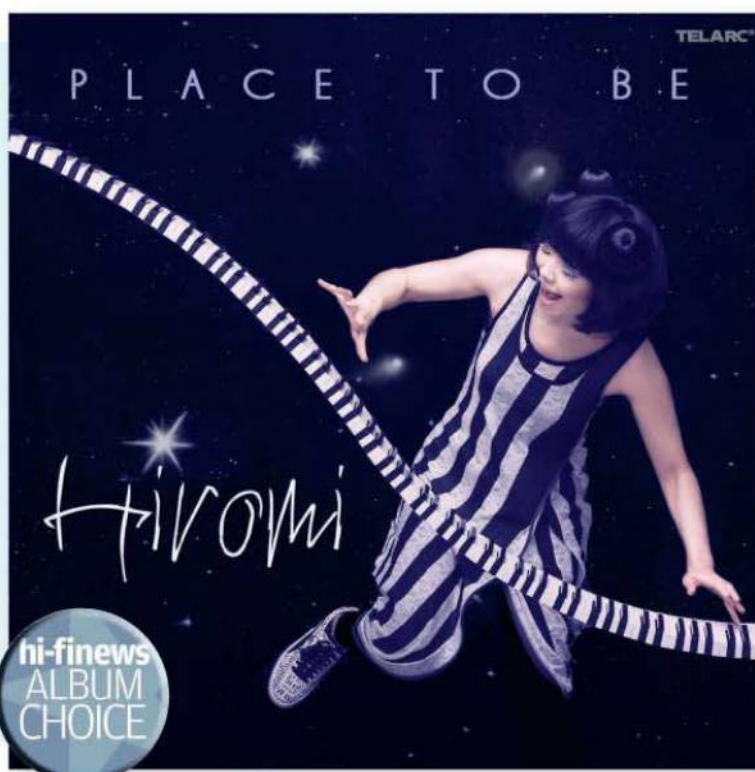
HIROMI

Place To Be

Telarc Jazz CD83695

Dazzling as ever, the virtuoso pianist ends her twenties and celebrates her travels with this first solo album. She soaks up influences and transmutes them freely. You could smile at her borrowings, serving up her 'Choux à la Crème' with a clove of Garner, turning to 'Sunny' at the end of her 'Sicilian Blue' and importing Neil Hefti's 'Cute' into her 'Islands Azores'. You might even hate it when she keeps her flight-of-the-bumblebee right hand aloft over a boogie bass, or uses a tin-tacky harpsichord effect on 'Pachelbel's Canon'. But she will get to you with the pensive title track, or the unashamedly rose-tinted 'Daytime In Las Vegas.' Hiromi wants to play there one day, and she will. It's just a matter of time. *SH*

Sound Quality: 90%



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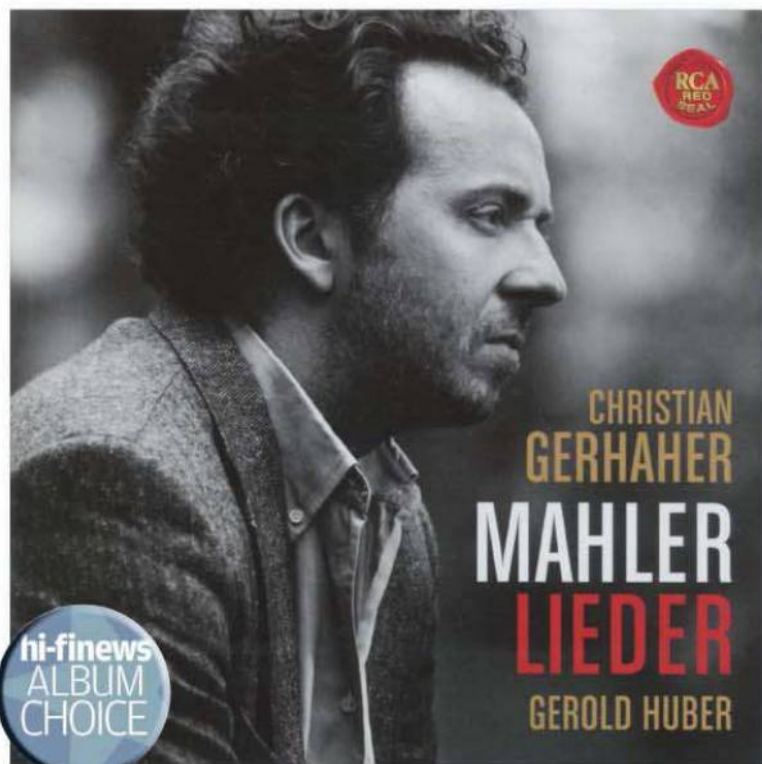
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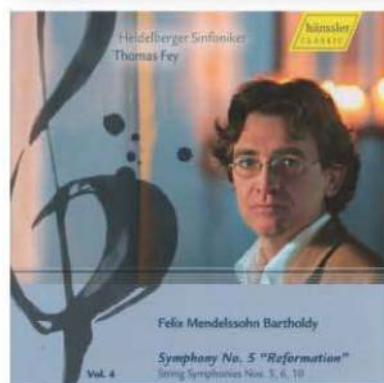
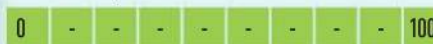
MAHLER

Songs with piano
Christian Gerhaher/Gerold Huber

RCA 88697 567732

A generous collection with the five Rückert settings and *Wayfarer* cycle surrounded by ten other songs – *aus der Jugendzeit* and *Knaben Wunderhorn* – ending with the 'Urlicht' (from Symphony 2). Singer and pianist were born in Bavaria in the same year, 1969. Gerhaher, who provides his own excellent booklet essay, has a light baritone not unlike Gérard Souzay's. He's such a scrupulous artist that I started by thinking he was more preoccupied by his sounds rather than the words, whilst perhaps Huber was trying to compensate too much for the 'missing' orchestral colours. But these reservations soon faded in the light of a Mahler recital of unique character and distinction. **CB**

Sound Quality: 95%



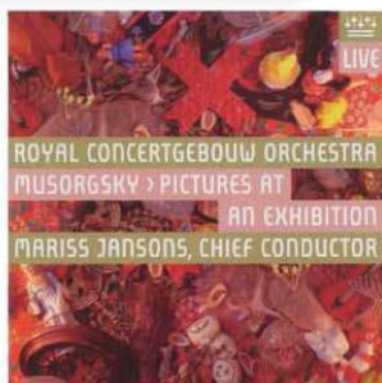
MENDELSSOHN

'Reformation' Symphony, String Symphonies 5, 6, 10
Heidelberger Sinfoniker/Thomas Fey

Hänssler Classic CD 98.547

This is Vol.4 in a worthwhile series embracing Mendelssohn's orchestral and pre-teen string symphonies. Fey, a Harnoncourt pupil, has developed two orchestras for 'historically informed' performances, and this disc has as committed an account of the maligned Fifth, 'Reformation', Symphony as you will find – albeit without the tonal splendour of Gardiner's DG with the Vienna Philharmonic (which has alternative scorings of the 'Italian'). Fey's players are brilliant but his dynamic swells become irksome and the strings are given a slight edginess. The booklet translation is quite obscure. **CB**

Sound Quality: 65%



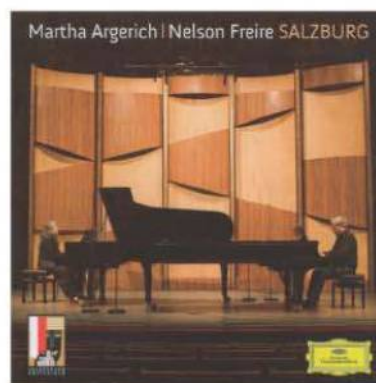
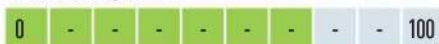
MUSORGSKY/RAVEL

Pictures at an Exhibition
Royal Concertgebouw Orchestra/Mariss Jansons

RCO Live RCO 09004

Bernard Haitink recently told a journalist he could 'recognise the sound' of his old orchestra under Jansons. And it is the superb orchestral sound that makes this SACD, from May/August 2008 performances – a mere 33m but low priced – so fascinating. From the outset it's clear that Jansons is intent on squeezing every drop of expressive juice from the transcription. And he's not above adding percussion to 'Goldenburg and Schmuyle' and 'Catacombae'. You won't find them in the 1986 Berlin recording by his mentor Karajan, a version more starkly Musorgskyan and no less impressive orchestrally (DG). **CB**

Sound Quality: 70%



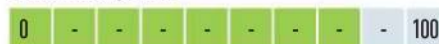
MARTHA ARGERICH, NELSON FREIRE

Two-piano works by Brahms, Rachmaninov, Ravel; Schubert's 'Grand Rondeau', D951

DG 477 8570

The Brazilian pianist Nelson Freire brings a complementary solidity to Argerich's habitual volatility in this 2009 Salzburg recital from the large Festspielhaus – the *Haydn Variations*, *Symphonic Dances* and *La Valse* (all familiar in earlier versions with Argerich). They alternate *primo/secondo* roles and sit at one piano for the amiable Schubert rondo. The rapport is remarkable, no less than with the Labèques: viz the teasing yet elegant Ravel; or the abrupt outbursts in the Rachmaninov, where you can almost 'hear' the orchestral colours. Their Brahms variations veer from the classical towards the *Hungarian Dances*. **CB**

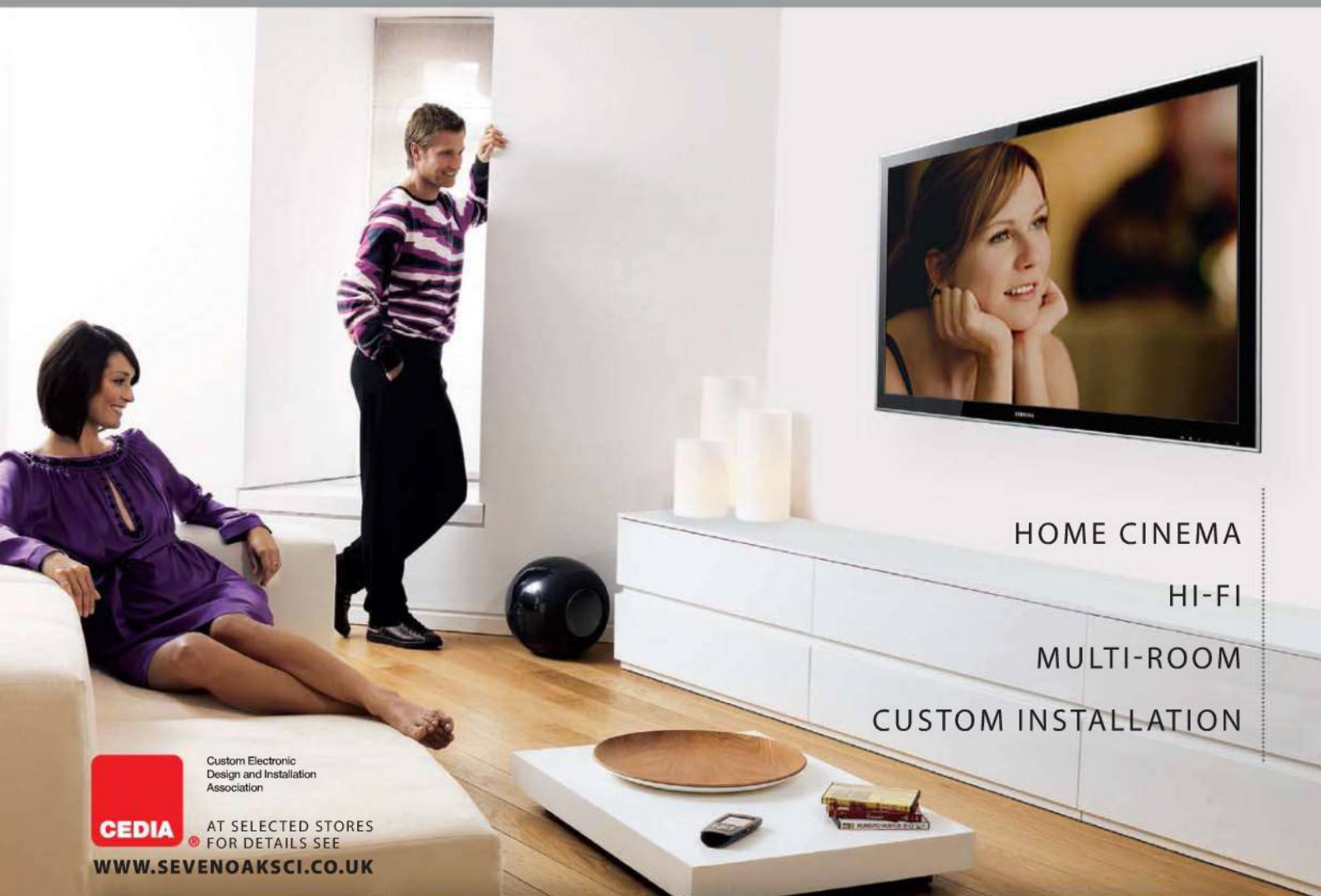
Sound Quality: 80%



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Cyrus CD Xt SE+ | DAC X+ | DAC XP+

Cyrus' award-winning CD Xt SE and DAC X have been upgraded with a + suffix. The transport now features an additional transformer, said to make it equivalent to adding a PSX-R power supply, while the DAC has a dedicated power supply for the re-clocking system.

The XP amplifiers are based on the circuitry of the top of the range DAC XP. The entry-level 6XP includes 6 line level inputs along with a zone 2 feature while the 8XP d combines the XP series pre-amplifier with a newly revised power amp, and contains an onboard DAC for digital sources.

The 'Servo Evolution' CD players, along with the 6XP and 8XP d amplifiers, continue to receive awards including the coveted What Hi-Fi? Product of the Year for the CD6 SE and 6XP.



Marantz

CD6003 CD PLAYER
PM6003 AMPLIFIER

Replacing the highly-regarded 6002 series, the new PM6003 amplifier and CD6003 CD player, come housed in Marantz's stylish 'M1' casing. The CD player features a front mounted USB socket allowing improved performance from devices such as an iPod or MP3 player while the amplifier has five line-level inputs along with a MM phono stage and two sets of speaker terminals for ease of bi-wiring.



Leema

Antila II CD PLAYER
Tucana II AMPLIFIER

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Michell Gyro SE TURNTABLE

Based entirely on the GyroDec, but without the costly acrylic plinth and dustcover, the Gyro SE brings the same qualities in a more affordable and compact package. A Gyro SE can always be converted into a GyroDec by purchasing a plinth and dustcover.

Pro-Ject Genie MKIII TURNTABLE

This MKIII version includes a new motor, more stable motor base and a new tone arm with traditional anti-skate. Supplied with an OM3e Ortofon cartridge fitted, the Genie MKIII is available in Standard Black with White, Piano Black and Red finish options available at extra cost.



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Kandy K2 Amplifier & CD Player
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SOUND & VISION

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Hooked on classical music from an early age, this month's reader has spent years building and honing a system with a single aim in mind: to bring the thrills of the concert hall and intimate sounds of the string quartet to his listening room.

Steve Harris stops by for some unbeatable-sounding Bach

In a spacious, high-ceilinged sitting room in a beautifully-proportioned Victorian house, Bach fills the air. We are listening to David's system, and feeling that this might be about as good as it gets.

'An electrician came in the other day,' says David. 'It turned out he sings in a heavy metal band. Anyway, he was doing something upstairs. I went up to give him tea, and he wasn't there. I thought he'd gone out for a cig or something. But he was just standing in here, and he said, "I've never heard anything like this!" I said, do you ever listen to baroque? And he said "No, never. But this is just amazing. I thought you had people down here!"'

Needless to say, David has made a long journey to arrive at this point. But he still remembers his first system with a lot of affection.

'That early 1970s student system took quite a bit of beating. It was a Trio amplifier, which cost about £80, Garrard SP25 turntable and little Wharfedale speakers. I put all that together and played the *Bridge Over Troubled Water* LP. And I couldn't get out of the flat! I just sat in front of it. It had a dramatic effect. Stereo, and the sense of space and liveliness. It was great.

'After that, I did every turntable that you did before you got to the daddy (the Linn!), which I didn't do. I had an Acoustic Research AR77, which was really good, then a Thorens. Then Rega brought one out and I had that.

'But I never got into high-end turntables. There was too much business in getting a stylus to drop, though it was great for the industry because there were so many peripherals and accessories. And I remember thinking, I'll go anywhere except vinyl. Even though I still miss that something you get from vinyl.'

So when CD came along you got a CD player immediately?

'Cassette came first! I would record from Radio 3 onto reel-to-reel and then onto cassette. So I went the whole distance, eventually, with a Nakamichi Dragon cassette deck.'

SCHOOLED IN SOUND

This story starts even before David had that first system of his own.

'The person who introduced me to music at boarding school was my housemaster. Later, when he went over to Revox, he gave me his old Ferrograph reel-to-reel tape deck, with quite a large number of amazingly-recorded Verdi, Donizetti and Puccini operas.



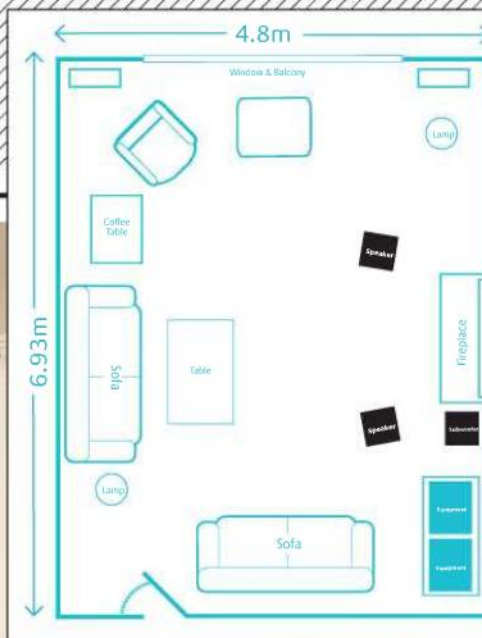
'With that Ferrograph and the recordings from it, and my housemaster having a very good system, I'd done a lot of my A-level revision in there, just playing music, because the rest of the place was very noisy. That changed my needs, frankly, from those of pop music, which I'd mostly been listening to before. Which was about bass and the experience of noise, really.

'And two years later, this extraordinary gift – he drove all the way down from Manchester and actually gave me the Ferrograph!

'Getting Tito Gobbi and Callas singing *Tosca*, having heard them live and suddenly realising that the system didn't do it, did make me want to get better systems. Particularly for a fuller sound from speakers. I went through quite a few speakers. I had Leak Sandwich

RIGHT: Verity Parsifal speakers are arranged to fire across the room, but still give a listening distance of nearly 4m. The speaker cables have been hidden beneath the floorboards





MUSIC ROOM

Solid walls and generous dimensions, including an 11ft ceiling, make this the kind of room that gives any system a flying start. It's stylishly uncluttered, but with just the right amount of soft furnishing. The suspended wood floor, though, is perhaps the reason that David has found a benefit from those Vertex blocks on top of the speakers, and has also been led to experiment with slabs underneath them. But he's getting a fabulous sound on the baroque music he loves.



"Who wants to admit to their friends that they bought blocks of wood to put on top of their loudspeakers? But they made a difference"

600s at one stage. I had Quad electrostatics, which I'd got second- or third-hand from a music school. They were really old.

RADIO DAYS

'It also made me get serious about tuners, getting proper aerials on the top of the house and so on. Because Radio 3, then, had some fair bandwidth. My brother was 25 years as a voice on Radio 3, so he would tell me when stuff was going out that was likely to be extraordinarily well sound-engineered.

'I was taking classical music a lot more seriously, going to a lot more

concerts. That ups your interest, I think, in having a delivery at home that is as authentic as you can afford. But yes, as soon as CD came out, I went that way pretty quickly.

'Then I got some speakers that were tiny, but with huge attitude, the Acoustic Energy AE1. They went "bang" at you, they would zip across the room. And I found that very exciting on strings, that speed. They could belt baroque music in a way that, wow! There was nothing between you and the instrument. It was in your face. It got a little too much in the end, but it was a terrifically exciting delivery.'

By now David was on the way to becoming a serial upgrader.

'It got beyond the point where you think, "I know this system, for x-amount of money, for me, makes a pretty good sound, that I really enjoy." Somebody brings out something with greater clarity, more space, and you're hooked again. If you can afford it, you keep going.'

By the late 1990s, David had ended up with a very serious system.

'Naim, its top-of-the-range CD player, and a great big amplifier from New Zealand that you could virtually fry eggs on, incredibly heavy with fins, and Shahinian speakers. It

ABOVE:

At the heart of this system is a pair of massive Halcro DM58 amplifiers, placed unobtrusively in the far corner of the room, along with the dCS digital player system on Kinabalu equipment platforms from Vertex

was then in a very bright-sounding room, very long but very bouncy.'

But you liked the Shahinian omnidirectional effect?

'Yes, though perhaps I was told to! It wasn't difficult for the next move to outperform that by a very long way. When I met Jeremy of The Right Note in 2001, the improvement started to go exponential. And without wanting to butter up Jeremy, it was because of him saying, "Let's see how far you can go with digital!"

'I told him that I really liked the speed and excitement of the strings and violins, and the clean tone you get from, say, a real quartet in a relatively small space. And I know that sound, and I can't be conned, because I know it.

'And the first shock to me, honestly, was these speakers. I would have said, that's silly, there's no way Canada can make speakers.

But then if you'd said Australia for an amplifier, I would have said the same! I'd believed in Cambridge as the centre for almost all things good for quite a long time!

'But with the Verity Parsifal, actually the monitor part is an extraordinary speaker on its own. The midrange out-Engishes anything Sendor or anyone else has done.'

WIZARDS OF OZ

So those Verity loudspeakers replaced the Shahinians, and the Australian Halco amplifiers came in to drive them. And at the same time David bought himself the dCS Elgar digital-to-analogue converter,

initially teamed up with the big Wadia 270 CD transport.

'It may be a tank, and it may be a classic American component, but I absolutely loved it. It had different width steel on the edges so that you couldn't get a resonant frequency. That upgrade was the biggest uplift since the first Trio system had been, from listening to Dansettes and whatever else we had in those days.

'So that was one huge 'Oh-my-God' moment. And the other one, definitely, was upsampling.'

AUDIO ILLUSION

That revelation came later the same year, with the arrival of the dCS Purcell. 'If I stick to my guns on what I hear, forget really what I think

is happening technically or scientifically, then there is a fuller, more musical experience in the result that comes out of

the speakers, with upsampling. That's unlike, I think, any other change that has occurred.

'It's the soundstage, really. It's the space, clarity between instruments and fullness of each individual note. It's the final con-trick, if you like, of the illusion of hi-fi, for me.

'If we were able to do an A-B and take it out, the sound becomes very much more focused in terms of soundstage, but there's far less fruit in the cake. There's far less richness to the music.'

Of course, the upgrading continued, with the addition of the dCS Verona master clock, and then the Verdi La Scala transport.

I know the sound of a real quartet in a small space, I can't be conned'



ABOVE: David loves the Halcro amplifiers for their effortless delivery at all levels

BELOW: Digital front end is a dCS Paganini transport and fully-updated dCS Elgar DAC



'As far as the equipment and things like upsampling are concerned, I would find it very difficult now to do what on many occasions I've wanted to do, which is to make things simpler, more Zen if you like! I think once the upsampler book has been opened, to this particular child, it's a very difficult one to have taken away.

'One of the things about the Halcro amps as a step up from anything I've had before is that if you play, let's say, Bach concerti, at the levels my wife Annie listens to, although I would probably like a bit more volume, you really are still getting the full orchestral experience. I've been attributing that as much as anything to Halcro. And they have the wonderful thing of being a very strong person, who doesn't need to be. It's a very decent handshake from somebody who could easily kill you! There's a lot of power there.'

Adding a final touch to the low-end extension of the Verity speakers is an Audio Physic Minos subwoofer.

'The sub shouldn't really do anything for me, because I don't think I can hear quite a lot of the frequencies it delivers. But whenever

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HI-FI @ HOME

I try to do without it! There is a solidity to the platform from which the music appears to come, a solidity that the main speakers don't have on their own.'

BITS 'N' BLOCKS

With electronics and speakers settled, further improvements came with the addition of various Vertex AQ accessories.

'I think the easiest thing to say about that is that I never intended to buy any of those bits. In fact, I have always been strongly against them. Because knowing a little bit about the nature of the business, the high profit margins on accessories... my sense is, that's where all of the selling is going to come in. It's like when you get the new car, you're going to have endless reps trying to sell you insurance for the paintwork.'

'So I was dead set against them, and actually, some of the products, which I'm sure Jeremy believes in entirely, I have not gone for. It's a decision based on one simple thing, which is did I hear anything different, which was better?'

However, the many Vertex AQ elements in the system now include mains filters and leads, Kinabalu equipment platforms, and, as a fairly recent addition, the Pico loudspeaker acoustic absorbers.

'Who wants to admit to their friends that they bought blocks of wood to put on top of their loudspeakers? It's clearly ridiculous! But they made a difference.'

'The units connected with mains current undoubtedly made a difference, and the latest addition, the HiRez digital signal cable, made a lot of difference. If you could do a quick A-B, I think anybody off the



ABOVE: Vertex AQ Mini Moncayo speaker links connect the Veritys' main monitor and bass sections

BELOW LEFT: dCS Verona Master Clock

BELOW: Audio Physic Minos sub reinforces the bass of the two-part Verity

street would hear a difference. Annie is my test, because she doesn't know what's been done. With the platforms, Annie said that there was something cleaner and clearer and purer, without knowing we'd done anything.

'Even as I've got older and hearing goes, I'm incredibly critical of sounds. I'd stalk around this sound all the time, finding fault with the system.'

'I had an uncle, a vicar, who was a serious musicologist – I once asked, could he help me with a basic history of music, and

got a 67-page handwritten reply, the whole history – he was an extraordinary man. Trains, cathedrals and music.'

'He was a person who would listen, just listen, had no clue what any of the brand names meant, but he would just listen. And he would say, "Oh yes, this is a big sound." You'd ask what he meant and he'd say "It's bigger than the music!" He would tap the boxes and

say "That's not dead enough." Meantime he was filling huge Belfast sinks with concrete to put speaker drive units in. I could go there any time and find him either pottering about with some train he was trying to make, or upgrading his hi-fi.'

'But he was someone who helped me hear the imperfections in each system. As much as anybody, I can blame him for the steady desire for upgrades, which typically was driving Annie mad. And yet she was listening to much more music than I was able to, because I was seldom there. To this day, as soon as you do some zapping and there's really nothing to watch, Annie will say, before me, "Let's turn that off and listen to music!"'

'In a way she should be answering the questions, because although she's got no idea what all this cost – I hope! I think she'd be astonished – she does love listening to the music. One of the things that has pleased me is that she will read, and then stop. Because she's taken up by the music, and just can't go on reading. I think that's a terrific compliment to the system.'

THAT'S ENOUGH!

'There has been a recent upgrade to the system, a quite distinctive one, in terms of Paganini versus La Scala. But that's enough! When I come in and listen to music in the evenings, this is fine. And I haven't had that before really.'

'In the past, there's always been something. I've thought, well I love the sharpness of this but I'm missing that, or it's slightly dead in the midrange.'

'So now, from my point of view, this is it! I'd prefer from here on, to hire musicians to perform live in my living room! ☺'





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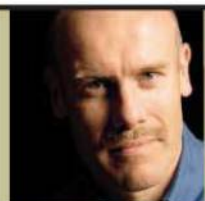
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Paul Miller Editor

Technician and writer on all things audio for over 25 years, Paul Miller took over the editor's chair in 2006. He invented the QC Suite, used across the audio industry

Dodging the FLAC

Can lossless audio file formats sound different from one another? Surely bits are bits and cannot have an impact on subjective music quality. Haven't we been here before asks **Paul Miller**

Digital audio, its resolution, storage and method of delivery has stimulated debate among audiophiles for near enough 30 years, ever since Sony's PCM-F1 digital processor/recorder provided the hors d'oeuvres for the CD main course a couple of years later. Now in the age of NAS drives and DRM-free high resolution digital downloads, debates are developing between factions that support losslessly-packed FLAC, Apple and WMA files and those that prefer the sound of the 'original' WAV linear audio file format.

But there's another angle to this well-mannered banter between music-loving enthusiasts. Once again, the PC brigade are telling audiophiles that we're all potty – that bits are bits and provided that losslessly-packed files are unpacked with no loss of data, then the stream is identical to that from an equivalent WAV.

Sophisticated error-correction and redundancy prevents bits from going missing during unpacking. 'After all,' the computer nerds sneer, 'programs would crash if bits disappeared from the code'. So unpacked files are bit-perfect and, thus, are indistinguishable from linearly encoded files of the same sample rate and resolution. 'End of debate,' they confidently declare.

DÉJÀ VU ANYONE?

Of course, we've all been here before. The same argument was trotted out



ABOVE: Sony's PCM-F1 digital processor/recorder – the digital debate began in 1981



ABOVE: FireWire, USB, S/PDIF or AES/EBU – different digital outputs all influence sound quality

by the nerds when audiophiles claimed to hear differences between silver CDs and bit-perfect CD-R/RW copies and between the optical and coaxial digital output of their CD players. Even – shock, horror – between different 1m digital interconnects. Hey, I once spent a week with five separate blind listening panels evaluating some 30 different digital interconnects. By the end, one listener could identify by name the top ten preferred cables from a random sequence.

ONE UP TO THE NERDS

Strictly speaking, the nerds are quite right but they're just not thinking sufficiently 'out of the box'. And by box, I mean the PC or at least its digital environment. Sure enough, provided all the bits of a music file or program continue on their way intact and in the right order then the PC will

operate as advertised. Issues of jitter and circulating interference pose no threat in the digital domain unless so severe that bits are shifted out of sequence. Only then does the program crash.

Last time I checked, the human audiophile was designed to operate in the analogue domain. We don't audition ones and zeros, we listen to analogue music and that music is only accessible once the stream of data has seen the services

of a digital-to-analogue converter. At that crucial juncture, any circulating interference and jitter cadging a ride on our datastream suddenly becomes very important indeed. Now the recovered audio signal is coloured by noise, idle-patterns, correlated distortions and jitter sidebands that all have a very real impact on perceived sound quality.

ADVANTAGE THE AUDIOPHILE

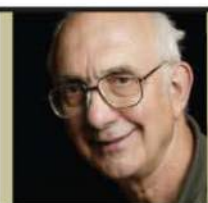
These variations in the data's 'environment' are what contribute to the perceived differences in sound quality. Crunch a FLAC file through your PC's processor and although rendered

perfectly intact, the pattern of jitter (etc) will almost certainly be different from that accompanying a WAV file rendered from the same hard drive through the same PC. Listen

'The computer nerds are not thinking sufficiently out of their digital box'

to these files through an integral sound card or via an S/PDIF, USB or FireWire connection to an outboard DAC and they'll all sound different again.

Every step in the digital chain has the capacity to exert an influence on the sound of the converted music signal. It's not magic or voodoo, not wishful thinking or imagination. It's simply an acceptance that audiophile perception is governed by a fuzzier logic than binary. ☺



Barry Fox Technology journalist

Barry Fox trained in electronics with the RAF and worked as a patent agent, but he gave that up to enter journalism. He is one of the world's top technology writers

Eyes wired shut

Live music could soon take a huge financial hit as the vast majority of organisers' stocks of high quality wireless microphones become redundant overnight. **Barry Fox** digs among the details...

If you would like to see more Roger Daltreys swinging lethally heavy metal mics on the ends of long leads, you may be in luck.

According to the music and entertainment industry trade bodies BEIRG (British Entertainment Industry Radio Group) and the recently formed Save Our Sound bonding of 21 organisations in the PMSE (Programme Making and Special Events) sector, concerts will soon fall silent, venues shut down and companies go bust, thanks to imminent changes in the laws governing the use of wireless radio mics.

LOST IN SPACE

Of course this is not just about The Who. Just about every live music performance – bar traditional opera and classical chamber and orchestral – now relies on high quality radio mics. So do recording studios, outside broadcasters and churches for that matter.

Their radio mics all work in the UHF band alongside TV channels and radio astronomy dishes, like Jodrell Bank, which pick up very weak UHF signals from far off galaxies.

Over the next couple of years there will be a massive re-organisation of the UHF band, as the UK switches from analogue to digital TV, and released frequencies are sold to the highest bidders in the mobile phone business. The situation is horribly confused by a mass of detail, so I've put together a crib sheet of essentials.

When digital TV conversion finishes, in 2012 in time for the Olympics, UHF channels 21-69 (470MHz-862MHz) will have been cleared of analogue TV across the whole country.

UHF channels 21-30 and 39-60 will be kept for digital television, and the remainder sold at huge profit for the government.

In February 2009 Ofcom confirmed plans to harmonise with Europe and add UHF channels 61, 62 and 69 to the previously confirmed block of channels to be sold, which are 63-68. This will create the highly desirable chunk of channels 61-69 (790-862MHz) known as the '800MHz band'. The block of channels 31-37 will also be sold off.

UHF channel 69 is currently given over exclusively to PMSE, and 95% of all UK radio mics use it. PMSE users do not have the cash to compete in the auction, due later this year. So channel 38 (which has the same 8-12 mic capacity as channel 69) will be snatched from the astronomers in January 2012 and given to PMSE as a direct replacement for channel 69.

Wireless microphones have only a limited tuning range, usually 24MHz, so current equipment that tunes across UHF channels 67-69 (838MHz-862MHz) will no longer be legal as it can't be used on channel 38.

Ofcom has promised

compensation so that PMSE users 'should not bear the extra costs that must reasonably be incurred to clear the 800MHz band.' But no-one agrees on what is meant by 'reasonably incurred'.

'The re-organisation of the UHF band is horribly confused by a mass of detail'

MORE COMPENSATION

As things stand the government is not going to do what seems obviously fair – pay radio mic users whatever it costs to buy new mics, and re-coup the money many times over from the auction.

Instead, compensation will be paid only on channel 69 equipment purchased before 2009. Anyone using 31-37 and 61-68 is out of luck because Ofcom reckons they should have known what was going to happen to them. And channel sixty niners will only get 'the residual value of the equipment'.

SOS likens the situation to being forcefully evicted from home or business premises, with little or no compensation, and is lobbying Lord Mandelson.

But everyone in government knows they could soon be out of a job. So why should they care about radio mics? ☹



ABOVE: Roger Daltrey – swinging the mic around by its cord on stage became his signature

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Barry Willis

Journalist for top American audio-video publications

While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

It's the platters that matter

However high-end your playback equipment, poorly cared for discs will impact sound quality. And that couldn't be any closer to the truth when it comes to vinyl, says **Barry Willis**

Recently, I attended a dinner party that included a few veteran audiophiles and a couple of musicians. Music lovers all, our post-dinner conversation about tubes and turntables and other bits of audio arcana drove the women into the kitchen.

There was predictable nostalgia for the glory days of vinyl records, when people would cue up recordings with the actual intention of listening. There was also plenty of hilarity in recalling bafflingly diverse attempts at the extraction of music by dragging a polished rock through an undulating trench of polyvinyl chloride – from making the record player as massive as possible, as in the Empire Troubadour, whose platter could double as a locomotive wheel, to making it as massless as possible, as in many products from Philips and Bang & Olufsen.

I briefly owned a Philips GA-212 that was so sensitive I had to tiptoe through the room while it was playing.

That machine was doubly enjoyable with Deutsche Grammophon discs, each of which acquired a 10kV static charge

through the essential act of pulling it from the sleeve. I can't remember how many times I took new DG discs back to the store in an effort to find one that didn't crackle like a campfire on the first playing.

One friend mentioned the Nakamichi Dragon-CT, an ungodly-expensive record-playing apparatus with a computer-controlled mechanism to correct for off-centre pressings. He has in storage a SOTA Star Sapphire, an ungodly-expensive record-playing apparatus with vacuum hold-down to flatten warped records.

HUMAN INGENUITY

Both of these technologies are glowing testaments to human obsession and ingenuity. The cynical among us could interpret their development as self-evident condemnation of the vinyl format – that if the problems they solved were sufficiently prevalent to require solving at all, there might have been something fundamentally amiss with the format.

But such a view might be too harsh, especially now that vinyl's Romantic Revivalist period is in full bloom. Even so, the rarefied experience enjoyed by the audio elite – cueing up superbly-recorded half-speed-mastered 180g virgin vinyl on a machine of pure unobtainium – is as far from the experience of ordinary music fans as the nearest galaxy.

Thus the photos of the turntables below, gentle reminders of a bygone era. These are the kinds of record-playing machines that most people used in the middle decades of the 20th century. Barely more than meat grinders with some primitive electronics attached,

these machines spun records that were never put back in their jackets and were left lying about to be stepped on, their playing surfaces hazy as if from sand-blasting.

'The truth is that vinyl is only ever as good as the condition it is kept in'

If they were stored at all, it was likely in a hideous wire rack that gouged them every time one was inserted or removed.

CROC 'N' ROLL

But record-playing equipment got better even if typical handling of the delicate media didn't. The fake-alligator-clad record-player-in-a-suitcase gave way to the relative sophistication of turntables such as the 1970s-era Pioneer PL-115D – a good clean example of which I recently found at a thrift store. Affordable and reliable, and all things considered, not bad, such tables were a huge leap forward even if the discs they played were inherently flawed or badly abused.

The audiophile's obsession with record care never carried far with the general population, of course. Then as now, the truth is that however much you cherish vinyl, it's only as good as the condition you keep it in. ☺



ABOVE: 'Barely more than meat grinders with some primitive electronics attached' – real world record players from the '50s and '60s, though more sophisticated decks were to arrive in the '70s



Jim Lesurf Science journalist

Jim Lesurf has spent a lifetime in audio, both as an engineer at UK hi-fi company Armstrong and reader in Physics and Electronics at St Andrew's University

Damaged goods

As long as choice is limited to formats with compromised sound quality then consumers will opt for the cheapest option. And it's not just a digital disease, as **Jim Lesurf** recalls...

The music biz has increasingly moaned about the decline in CDs sales, and the shift to MP3 downloading. But could one reason for this be its attitude to the people it expects to pay its wages?

Modern life seems to be saturated with examples of big companies who seem to assume the rest of us owe them a living. Banks who blithely tell us they've decided we can't use cheques any more. Software companies that try to control what we are allowed to do with our own computers. And manufacturers of pop and rock CDs who presume buyers 'prefer' music to be level compressed and clipped into a distorted mush. Did they ask us?

SHODDY SOUNDS

Could it be the latter which has prompted so many people to download MP3 versions of tracks and albums? After all, why pay for a CD when the chances are you'll be getting damaged goods?

It seems odd that those who crush the life out of recordings on CD don't wonder if they are throwing away one

of the selling points of CD. I've heard the argument that people buy discs and so must prefer the level compression. But what about the people who opted out and didn't buy the CD?

In one sense none of this is new. In the 1960s and 1970s – an era I shall call BC (Before Compact Disc) – I used to hate the process of trying to buy a new LP. I usually found that the classical LPs I bought showed all kinds of annoyingly audible flaws once I got them home. Rifle shots, swishing noises, wow, ripples... you name it. Nor was I alone. There were many articles, letters, and editorials in *HFN* about the shoddy quality of pressings.

Recently I was talking to someone who worked in a record shop in the 1970s who told me they used to get about 20% of LPs returned for replacement because of such faults. That certainly agrees with my recollection – although I tended to find that I was much more likely

to return classical LPs than pop and rock ones. Indeed, when buying classical LPs I would plan in advance when I'd be able to take it back for a replacement!

PROMISED LAND

That may seem a crazy situation to be in. But the problem was simple: if you wanted to hear those particular artists playing that piece of music, then you either bought the LP made by the company who 'owned' them or you went without. This was why the arrival of CD

felt like being allowed into the Promised Land. Not because LP was inherently incapable of providing superb results. Rather, it was because trying to get a copy you could listen to without flinching at the

manufacturing flaws was so difficult. Then, as now, it felt as if some big companies thought they could just walk right up and expect to help themselves to the contents of your wallet.

'I usually found that the classical LPs I bought had all kinds of audible flaws'

CAREFULLY DOES IT...

Vinyl LP has survived and – as with well produced CDs – can sound good. In each case you need it to be made with care so you can hear the content and not the production flaws. But maybe the music companies have shot themselves in the foot by kidding themselves that the punters 'prefer' mad levels of compression and clipping. Pop/rock CDs don't have to sound like that. Neither should you have to pay extra for an 'audiophile' pressing of an LP in order to avoid industry-inflicted problems.

But what choices are you given? Many big companies seem to wish to give mere paying customers Hobson's Choice: take it or do without. However, these days maybe Hobson is opting for MP3. ☺



RIGHT: 'Why not buy the Schubert? You can bring it back on Saturday.' Purchasing records in the '60s and '70s was not without its pitfalls due to manufacturing flaws in pressings

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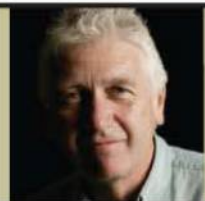
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Steve Harris Contributing Editor

Steve Harris edited Hi-Fi News between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

Magnetic moments...

When the price of cobalt spiralled in the 1970s, speaker manufacturers switched to magnets made of ferrite. But did the Alnico magnets of yore sound better? **Steve Harris** has the answer

Along with most of my generation, I'm grateful for the mass-market hi-fi boom of the 1970s, which made stereo affordable for ordinary young people. And if the expanding industry seemed to turn its back on the knowledge of previous decades, it usually had compelling reasons. This was true of a move to new magnet materials for loudspeakers, a source of myth and controversy ever since.

Speakers needed strong magnets, which had long been made of Alnico, a metal alloy that included cobalt. But in the late 1970s there was a 'cobalt crisis'. In 1976, the US government stopped selling cobalt from its stockpiles. The other main source was Zaire, but demand exceeded supply even before the country's mining area was invaded a year or so later. When the price of cobalt went through the roof, speaker makers had to find alternatives.

So it was that the speaker industry switched to ferrite magnets. Yet there remained a belief that Alnico sounded better. If, like me, you wondered why this should be, here's the explanation I was given by distinguished loudspeaker engineer Alex Garner, who retired as Tannoy's technical director in 2007.

IRON BREW

'You asked about the upgrade of the Dual Concentrics from Alnico to ferrite in the late 1970s. Alnico is a metal magnet alloy of aluminium, nickel, cobalt and iron, and conducts electricity very well. Ferrite is a generic ceramic and is a very good insulator. These opposing conductivity properties are the reason for some polarisation of industry opinion – though we didn't realise it at the time!

'With the metal magnet configuration, the top plate, magnet, bottom plate and pole-piece are all in electrical contact with each other. This creates an electrical "shorted turn" around the voice coil. The shorted turn reduces the third and higher odd order harmonic distortions.

'The ceramic magnet effectively insulates the top plate and bottom plate from each other. There is therefore no shorted turn around the voice coil and no control of the motional impedance of the voice coil. Interestingly, some of the German and Danish magnet assemblies of yesteryear did not use adhesives to hold the ferrite magnet assembly together but used brass bolts passed through holes in both the top plate and bottom plate.

'The magnet had to have holes cored into it, which was expensive as it caused cracking and rejects during the ceramic firing process. Brass bolts were used to prevent a short circuit of the magnetic flux generated by the ferrite magnet, but they had a hidden

advantage of completing the electrical conductivity circuit. Some people swore the Danish and German assemblies sounded better than their cheaper 'glued together' UK and USA competitors.

'Looking at the original Spendor BC1 and its earlier cousin the BBC LS8 monitor, the original 8in bass driver used a metal magnet in a "slug and pot" assembly which was again conductive and created a shorted turn. Later models changed to ferrite and the midrange "magic" was never recovered.

'All the above explains why we use copper pole-piece caps, copper top plate rings and internal magnet flux control rings in our modern designs, to control the motional impedance artefacts which cause increased third (and higher) distortion



ABOVE: Alex Garner, who re-designed the Dual Concentric for use with ferrite magnets

products. And, of course, we still use the original Alnico metal magnet assemblies for Tannoy's Westminster Royal, Kensington and Canterbury!

'As an industry, we are moving to neodymium-iron magnets, which are again electrically conductive. We stick these together with an insulating layer of adhesive, when the opportunity for reducing distortions is just a 0.1mm layer of adhesive away! But the Tannoy technique of grounding the metalwork does overcome this, as the top plate is in electrical contact with the chassis ground and the backplate is grounded through the concentric tweeter assembly.'

TRADITIONAL MODELS

Clearly, Tannoy still thrives on the Dual Concentric principle first introduced in 1947. Meanwhile, Lowther follows the even earlier ideas of its mentor Paul Voigt, using a 'parasitic' treble cone rather than a separately-driven tweeter. Lowther uses modern 'rare earth' magnets in its latest drivers, but still offers its traditional models with Alcomax, otherwise known as Alnico.

Thirty years ago, few people would have expected these speaker concepts to outlast the 20th century. Now they look as if they could live to be 100. ☺



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STAX OF MEMORIES PICK-UPS, AUDIO FAIRS AND CASTLE SPEAKERS

As one of the ever dwindling band of geriatric audio industry has-beens, I was surprised to see in the pages of the January issue a photograph of myself in my younger days – about 35 years ago – wearing a pair of Stax SRX Earspeakers (p128 – not the dummy on p125). This was clearly taken at one of the 1970s Audio Fairs.

Ken Kessler's article brought back many memories and perhaps you will permit me to add one or two details omitted from his report. I stand to be corrected but I believe the first UK importer of Stax was Peter Belt (PWB Audio) in the very late '60s or 1970 who supplied it with a self-energising box of his own manufacture. Shortly after, distribution passed to Wilmex, for whom I was northern distributor. The SR3/SRD5 combination sold for about £33 if memory serves me correctly.

After Wilmex the Stax products apparently disappeared for a while, but eventually turned up with the Path Group and now, with Nigel Crump of Symmetry.

One item missing from the report was the Stax electrostatic pick-up cartridge, which

appeared in the 1970s. I had one of these mounted on its UA7 arm and never have sounds more beautiful come off disc. That is, when it worked, as unfortunately it was a dreadfully unreliable device which, presumably, is why it was so short-lived.

The Stax electrostatic loudspeaker was also magnificent in terms of clarity and lack of colouration when used within its somewhat limited power-handling capacity, which led Quad's Ross Walker to say to me jokingly that it was OK for playing *Ying Tong*! I have little doubt in my mind that the Stax earspeakers were, both then and now, probably the most perfect reproducers ever made.

If I may briefly pass on to Steve Harris's piece on the Castle revival in the same issue. I was pleased to see that they are continuing the quarter wave principle. As Steve says, I was responsible for the original twin-pipe Winchester in 1991, which was quite unique then and Vic Sapsford is to be commended for his courage in introducing the loudspeaker which completely broke the then-current mould in terms of design and appearance.

I think the Winchester was the first of the tall, slim 'pillar'-type loudspeakers, which are now so common, but the combination of forward and upward-facing drive units provided a very spacious sound without losing the stereo effect while also giving the impression of the speakers disappearing, aurally speaking. Incidentally, I found 36in (90cms) to be the absolute minimum height for quarter wave loading, as with the Castle Chester.

Colin Walker, via e-mail



ABOVE: Colin Walker in the 1970s

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Fountain or Briggs?

PICTURE OF TANNOY FOUNDER IS INCORRECT!

Is it just me, or does the picture at the foot of p124 in the March 2010 issue, which is captioned 'Tannoy founder Guy R Fountain...' actually look a lot like Gilbert Briggs, the founder of Wharfedale – one of Tannoy's major rivals?!

Graeme Hirst, via e-mail

HFN replies: No Russell, it isn't just you. The picture shown was indeed one of Wharfedale founder Gilbert Briggs. Gremlins in the machine we're afraid to say. To clear up any confusion, below are printed pictures of both company founders, this time captioned correctly.



ABOVE: Gilbert Briggs (left) and Guy R Fountain (right)

Biting at Apple

KEN! OUR HOBBY NEEDS YOU...

How many times over the years have I ranted to myself at Ken Kessler's latest musings, cursing him as a pretentious name-dropping fool, or a Yank who knows nothing. This time, however, he is so right it hurts. I am, of course, referring to his 'Off the Leash' comments on Steve Jobs and all things Apple [HFN, March '10]. There is nothing I can add and nothing I would take away from his piece. It is truly painful to think that Jobs feels he has any business remarking on what might constitute good sound quality at all. Apple products may be nicely finished, they may be desirable, and they may actually work on some limited level, but they are nothing to do with hi-fi.

Just when I was becoming concerned that you were drifting into a less outspoken middle age I am relieved to see that you still have it in you to bite back. Keep it up Ken; I may not always agree with what you say, but this hobby, and anyone interested in it, needs you to keep saying it.

D Houghton, London

RIGHT: The Apple Hi-Fi – the butt of KK's 'Off The Leash' column last month



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Sound Off!

Mystery Quad amp...

HELP ME IDENTIFY MY VINTAGE BUY

I have just got my hands on a very old Acoustical (later Quad) amplifier and have been desperately looking for any information about it.

I've drawn a blank with Quad itself while searches on the internet throw up no details whatsoever.

I was wondering if your expert on all things vintage, John Howes, might be able to shed some light on its origins, or at least help identify it.

Marin Turea, via e-mail

John Howes replies: The photos of the Quad you have supplied are of either an MB31 or MB32 public address amplifier, dating from between 1946-1952. This amplifier could be used on either mains or battery battery and had an output of 30W.

Unfortunately, information on these particular models is very scarce and I don't have the circuit diagrams. I'm pretty certain the output valves would have comprised two KT66s, a GZ32 rectifier and possibly EF37s and ECC33 in the earlier stages.



ABOVE: Marin's 'mystery' Quad

A different point of view

SURELY FOUR ADJUSTABLE FEET BEAT THREE WHEN IT COMES TO SPEAKER STABILITY?

In his Lumen White speaker review in the January 2010 issue, Keith Howard makes a common error confusing geometry and good design. Three feet may be best for the milk maid (as Keith declares in the piece) but four adjustable feet are more stable than three feet.

Yes three points define a plane and thus can be stable in a very simple manner. But depending on where the mass is, it is too often way too simple to tilt over a three-point support. For a speaker the mass is often heavily to the front face. In the case of the milk maid, she stabilizes the three legged stool with her mass and ability to adjust quickly to minor instability.

No, a four-point base doesn't define a plane and can easily be unstable, but if the four feet (or even just one) are adjustable the instability is eliminated. It is quite simple to make a super stable four-point adjustable base for a typical speaker. For my own use, I greatly prefer the more conventional four-foot base. Three pointers scare me.



And perhaps this is why most speakers are supported on four feet.

Allen Edelstein, USA

Keith Howard replies: Mr Edelstein's contention that four adjustable feet are more stable than three feet depends, of course, on the disposition of those feet relative to the speaker's centre of gravity, so it's a flawed generalisation. As he observes, most speakers have a forward centre of gravity because of the mass of the drive units, and so may be most easily toppled forwards. If so then it makes no difference whether the two

feet at either side of the front baffle are accompanied by one at the back or two. Each case, then, needs to be judged on its merits. When deployed appropriately – as in the unusually deep Lumen White Silver Flames, whose cabinet is roughly triangular in plan view – three feet provide perfectly adequate stability and their inherent advantage then comes into its own. Only be scared, I would suggest, if you allow boisterous games to be played around them – which at the Silver Flames' price seems unlikely.

Banging the drum for B&O

VINTAGE BEOLAB FAN SHARES DETAILS OF HIS RARE 3000 AND RESTORED 5000 SYSTEM

I was most interested in your Hi-Fi@Home review on the Beolab 5000 system [see *HFN* Feb '10]. I should, however, point out that this system is actually a popular choice for the B&O enthusiast. I too have a Frede-restored 5000 system though my Beogram 3000 is the truly rare version of the Thorens deck with a 12in arm and has a custom SP cartridge supplied via Frede by Axel Schürholz. Axel runs his own company (www.schallplattennadeln.de) re-tipping and repairing all cartridges, but particularly those made by B&O.

I have the full system, though I have given away the reel-to-reel as I tend not to record. Also, I use LS3/5A speakers with AB1 subs instead of the Beovox 5000 Mk 3 and Beovox 2500s as I prefer the sound, though the B&O loudspeakers are always to hand.

I am not alone, as a number of my friends have similar set ups, one of them using my Beogram 3000 Acoustical as a source. I can certainly attest to the quality of Frede's work and the friendliness of

the welcome at Struer. I also have a very rare Beomaster 4401 that Frede restored and gave to me which is probably the best receiver that B&O ever made.

The quality of this era of B&O products is such that many are still working many years after their competitors have been thrown away and they still offer performances that better most modern systems. There is, however, clearly something about people who own these systems as I, too, have a Triumph GT6!

Peter McEvedy, via e-mail



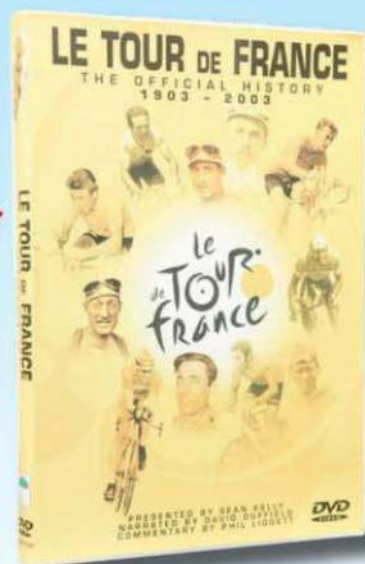
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Cabasse Loudspeakers

Founded in 1950 and acquired in 2006 by the Japanese giant Canon, French company Cabasse is on a mission to make its unique loudspeakers better known throughout the world. **John Bamford** visits its impressive facilities in Brittany

If you've any knowledge whatsoever of the history of audio development, then famous British marques such as Goodmans, Wharfedale, Celestion, Quad, Rogers, KEF and countless others are forever to be remembered in hi-fi's history books. No wonder, then, that for foreign makers the UK has always been the most difficult country in which to distribute and sell loudspeakers. Just ask the gigantic Japanese global consumer electronics brands. The likes of Pioneer, Sony, Yamaha and others manufacture a mind-boggling quantity of loudspeakers. Where do they sell them in large volumes? Well, pretty much everywhere... except the UK. After all, why would a British consumer want to buy a foreign-brand speaker when already spoilt for choice with so many home grown labels to choose from?

BIG IN FRANCE

So you can be forgiven for knowing little about French speaker specialist Cabasse, which like Focal and Triangle (also of France), along with many other countries' manufacturers have never really become a household name. Except in their home country, that is.

'What's really quite remarkable about this company is how well known and highly regarded we are in France,' enthuses Guy Bourreau who heads-up the day-to-day running of Cabasse.

'And I don't mean just among hi-fi enthusiasts, but among French consumers at large. If someone enquires what I do for a living, I need



ABOVE: Josiane hand assembles and tests a batch of BC13 drivers, coaxial units with aluminium frames and magnets used in three-way Cabasse models such as the Iroise, Egea and Bora

polished floors – it's impossible not to be impressed by the state-of-the-art facilities afforded the company's design engineers. Fabulously appointed workshops allow prototyping and tooling of specific parts, while in 'clean room' areas we witness drive units being individually assembled and meticulously tested for consistency of performance.

CANON TO CABASSE

During his career Guy Bourreau has been head of professional AV activities for 3M (think: recording tape!) and responsible for the distribution of Neve and Harrison recording studio consoles. Guy also spent ten years at Kodak before joining Canon to be in charge of both consumer products and broadcast lenses. Subsequent to his employers acquiring Cabasse in



ABOVE LEFT: Boasting fabulous facilities and overlooking the Atlantic Ocean, the company's R&D Centre in Brest was constructed in 2003

not say "I work for Cabasse, the loudspeaker company". That would be like telling them that I worked for Ferrari, the car manufacturer. Everybody knows that Ferrari makes cars. And in France, everyone knows that Cabasse makes speakers.'

Clearly this gives Guy a warm glow inside, along with the knowledge that in a recently completed consumer research programme where French people were asked to name the world's most famous hi-fi brands, Cabasse in fact came fourth.

As we enjoy a guided tour of the glistening R&D centre – a temple of concrete and glass and gleaming

2006, it was his passion for music recording and reproduction that lead him to take the position as 'directeur général adjoint' for the French speaker maker.

Guy reports to Cabasse's CEO, Canon veteran Kazuhiro Otsubo, who is president of Canon Bretagne – a hi-tech manufacturing facility of truly massive proportions located in Liffre, 25km from Rennes deep in the Brittany countryside.

MUSICAL ROOTS

Cabasse's brand ambassador – and director of marketing and communications – is Christophe Cabasse, whose father Georges, a physicist and musician, founded the company several years before Christophe was born.

'As a child I was privileged to be surrounded by beautiful music and great hi-fi sound,' says Christophe, who can trace his family tree back to 1740 when one of his ancestors began making violins at Mirecourt in the Vosges Mountains of eastern France. Five generations of Cabasse craftsmen followed the family tradition, hand-crafting fine stringed instruments and supplying Europe with violins, violas and cellos, many of which are still being played in orchestras today.

'My father has a vivid audio memory, a remarkable talent for identifying and remembering sounds which I'm sure is a gift passed down through the genes of our family ancestors,' continues Christophe.

'And his obsession to reproduce perfectly the recorded sound of instruments without any colouration is something I grew up with.'

Georges Cabasse and his wife first started repairing and then producing speaker drive units in Neuilly/Marne, in the eastern Paris



ABOVE: Serge installs the Kimber wiring loom in La Sphère. This white pair is for a customer living in the Swiss Alps



ABOVE: Massive honeycomb inverted dome woofer as used for La Sphère. It measures 55cm (22in) diameter – (a tweeter is held beside it to indicate scale)

BELOW: (L-R) Christophe Cabasse alongside Guy Bourreau, Frédéric Lebreton (sales & marketing) and R&D manager Bernard Debail

suburbs in 1950. The company soon made a name for itself thanks to the launch of 20th Century Fox's Cinemascope 'widescreen' movie system (itself based on ideas first patented by a French professor named Henri Chrétien). Cabasse developed drivers that were installed in the first Cinemascope-equipped cinema in France, the REX in Paris, to reproduce Cinemascope's three-channel stereophonic and, soon thereafter, four channel soundtracks – the additional channel adding surround sound.

'Our wide range of speaker models today encompasses everything from extreme high-end audio systems like La Sphère [see *HFN* Feb '10] to affordable AV speaker packages, sat/sub systems and in/on wall speakers,' says Christophe.

'But if you think that AV is a creation of the modern era, think again. While my father's quest was always to develop transducers that could reproduce the original sound – a philosophy Cabasse maintains to this day – this has always encompassed pure audio recordings and film and TV soundtracks.'

Christophe points to a vintage Cabasse valve preamp from the late 1950s that adorns a display

shelf in one of Cabasse's listening rooms. 'Just look at this: one of the line inputs is actually labelled 'TV'. You see, even back in the days of monophonic AM sound accompanying television broadcasts, in our living room at home when I was a child we always had pretty good sound when watching the TV. Why put up with the tinny sound from a television set when you can route the sound through the living room's hi-fi system? We always did that in our home. My father insisted we create the best sound possible from whatever the source.'

Guy adds: 'Yes, the marriage of high resolution video with audiophile quality audio is something Cabasse continues to be involved in. Our 12.1 sound system in La Géode Omnimax cinema situated in the Parc de la Villette in Paris has to be experienced to be believed. [See www.lageode.fr/histoire.html.]

'And in 2009 we were involved in a pioneering project with manufacturers of broadcasting

equipment. A production of the opera Don Giovanni in Rennes was broadcast in 3D to cinemas in Paris, Brest and Avignon via satellite links. Our know-how was requested to create holographic audio sound fields to accompany the 3D images.'

MAKING A POINT

Pioneering in many of its endeavours to maintain fidelity to the source, what sets Cabasse apart from the crowd is the unique design and construction methods employed in what it calls its Spatial Coherency

'Its first two-way co-axial driver came in 1955'



ON LOCATION

System (SCS) drivers, technology premiered in 1992 in its TC21 low-mid/midrange/tweeter tri-axial driver. In August of the same year Cabasse launched its Atlantis flagship loudspeaker, a four-way co-axial system with active drive that was to be a forefather of today's La Sphère. But Cabasse's desire to develop loudspeakers that represent a 'perfect' point source can be traced as far back as 1955, when Cabasse introduced the Diphone, its first two-way co-axial driver. And just two years later the company began making its first active speakers, which came fitted with electronic crossovers and valve amplifiers.

A range of two- and three-way active speakers employing solid state electronics soon followed during the 1960s, by which time the company had moved from the hustle and bustle of Paris to the historic naval port of Brest in Brittany, on the Atlantic coast. Wind the clock forward a decade and throughout the 1970s Cabasse was manufacturing a range of innovative servo-controlled speakers, alongside all manner of actively driven models for audiophiles and professional studios.

COMPUTERS, TOO

By this time Cabasse was more than just a speaker manufacturer, being immersed in electronics research along with the development of computers specifically to aid acoustics research and speaker quality control – at a time when computers were considered the stuff of rocket science.

Explains Bernard Debail, Cabasse's director of R&D who

'An anechoic chamber floats within the building'

previously worked at the acoustic laboratory at the University of Maine in Le Mans: 'This area in Brittany has long been a centre for scientific research. Where we are situated today on the outskirts of Brest, our immediate neighbours include the Centre d'Etudes Techniques Maritimes et Fluviales [a major marine and rivers research establishment] and Ecole Nationale Supérieure des Telecommunications de Bretagne [a prestigious school of telecommunications engineering]. We share resources and collaborate in scientific projects with research students and academics – experts in their fields.'

Newly constructed and opened in 2003, Cabasse's current R&D centre provides a truly fabulous environment in which to work. Incorporating an impressive anechoic chamber that is fully floating within the main fabric of the building together with an underground 'bunker' for testing all manner of sound systems to their

ABOVE: Skilled workers in Canon's factory take responsibility for the complete assembly and testing of individual speakers

BELOW: A Baltic Revolution spherical satellite model is assembled, featuring Cabasse's unique TC23 triaxial driver with annular midrange and bass 'doughnuts' formed of P2C and Duocell

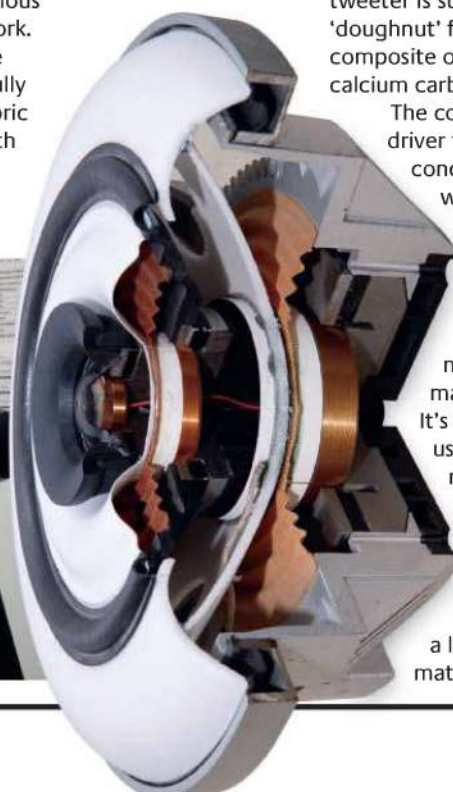
limits without disturbing a soul, the vista from every employee's office window has panoramic views of the Atlantic ocean that are nothing short of breathtaking.

'We've 22 R&D engineers here, along with some marketing and sales personnel, and just three specialists in production. Only La Sphère is constructed here. Each one is hand crafted and individually calibrated prior to a Cabasse engineer personally installing the speakers in the customer's home.'

UNIQUE DRIVERS

As highlighted in our reviews of Cabasse's Iroise and Baltic Revolution speakers last year, Cabasse has developed unique drivers designed to obviate the 'cuppy' colourations that can plague conventional coaxial drivers. In its BC13 coaxial driver a soft-dome tweeter is surrounded by midrange 'doughnut' formed of P2C, a composite of polypropylene and calcium carbonate.

The company's TC23 triaxial driver takes the design concept a stage further, with the tweeter located within a waveguide, within the midrange, within the woofer. The annular woofer is made of Duocell, a material that Cabasse manufactures in-house. It's similar to Rohacell, used by several speaker manufacturers today for making rigid, lightweight sandwich cones, the 'foam' material commonly sandwiched between a layer of stiffening material. But Cabasse's



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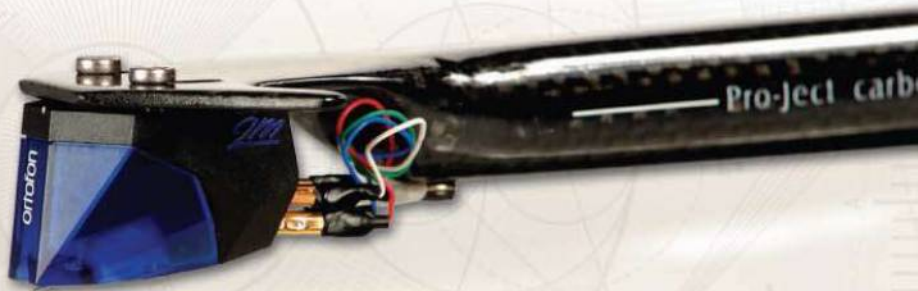
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Precision engineering

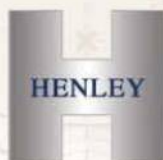
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COMPANY TIMELINE

1950
Company founded
in Paris suburbs
|
1955
Launch of
Diphone, first
two-way coaxial
driver
|
1958
First active
speakers,
valve-powered
|
1960
Cabasse moves to
Brest in Brittany
|
1975
Production of
servo-controlled
speakers
|
1980
Development of
honeycomb driver
materials
|
1986
Launch of first
drivers employing
Duocell
|
1992
First triaxial
(TC21) driver
with 'coaxial
coincidence'.
Superseded by
TC22 (2002) and
TC23 (2006)
|
2003
Opening of new
R&D centre in
Brest, facing the
Atlantic Ocean
|
2004
Start of
cooperation with
the Canon factory
in Liffre, Brittany
|
2006
Debut of flagship
La Sphère
DSP-controlled
active four-way at
CES in
Las Vegas.
Cabasse joins the
Canon group

proprietary manufacturing process produces a diaphragm that can't ever delaminate because it's *not* a sandwich, the company claiming it has an 'unrivaled' rigidity/damping/weight ratio. Manufacturing the diaphragms has necessitated the design and construction of special tooling developed over many years.

OVER TO CANON

A couple of hours' drive away from Cabasse's R&D centre in Brest is Canon Bretagne, a hi-tech manufacturing plant established by Canon in 1983 which today employs some 600 people [see www.canon-bretagne.fr]. Producing everything from photocopiers and other office equipment to radiology devices and OEM manufacturing of Archos portable media players, Canon Bretagne currently covers some 19 hectares and is still expanding. Production of printer cartridges is also a major activity and since 1997 the factory has acted as a recycling plant for cartridges collected from throughout Europe.

It is within this gargantuan facility that Canon now manufactures and assembles the bulk of Cabasse's speaker range, with the sort of meticulous attention to detail that is typical of a hi-tech manufacturing plant belonging to a Japanese multinational.

Construction of Cabasse's coaxial and triaxial drivers has



ABOVE: Hidden in the countryside, the huge Canon factory covers 19 hectares

'Proprietary tooling is all developed in-house'

to be undertaken in a controlled environment where correct temperature and humidity are critical for forming the composite cone/dome materials.

The proprietary tooling necessary to produce the drivers consistently and accurately has all been developed in-house, the precise

control of heating and cooling of the Duocell material during each drive unit's construction being critical.

Now that the company is under the umbrella of

the giant Canon group, what of the future? 'Watch this space,' cry out Guy and Christophe almost in unison. 'Increased access to supercomputers for simulations has increased efficiency and accelerated Cabasse's R&D...'

NEW PRODUCTS

While today Cabasse loudspeakers are represented by distributors in some 40 territories worldwide, it still sells the majority of its manufactured output to French consumers and hi-fi enthusiasts. Only around 30% of factory output is exported to other countries. Clearly the company intends to do something about this, identifying Japan and the Far East in addition to immediate European neighbours as major markets that have yet to learn about Cabasse's audio heritage and experience first hand its unique product designs.

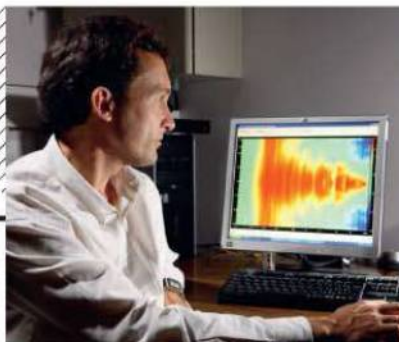
'Since acquiring Cabasse four years ago we have been rather busy patenting many of the company's

technologies that encompass some materials science – especially the proprietary methods employed for forming materials – and signal processing' confides Guy.

'Canon itself has the second largest number of patents attributed to any company worldwide, we believe, so certainly we can be considered experts at protecting intellectual property,' he smiles.

'We've had a team of our experts working on patenting Cabasse's key technologies in order to protect future investment and the growth of the company.

'There are several new products on the drawing board that we can't divulge until later this year. You'll be witnessing a flurry of activity from Cabasse in the not-too-distant future; you can be sure of that. ☺



ABOVE: Within the R&D centre Bernard Debal has access to an anechoic chamber that's three storeys high; Kazuhiro Otsubo of Canon Bretagne is Cabasse's CEO



ABOVE: £110,000 flagship model, the actively-driven four-way La Sphère

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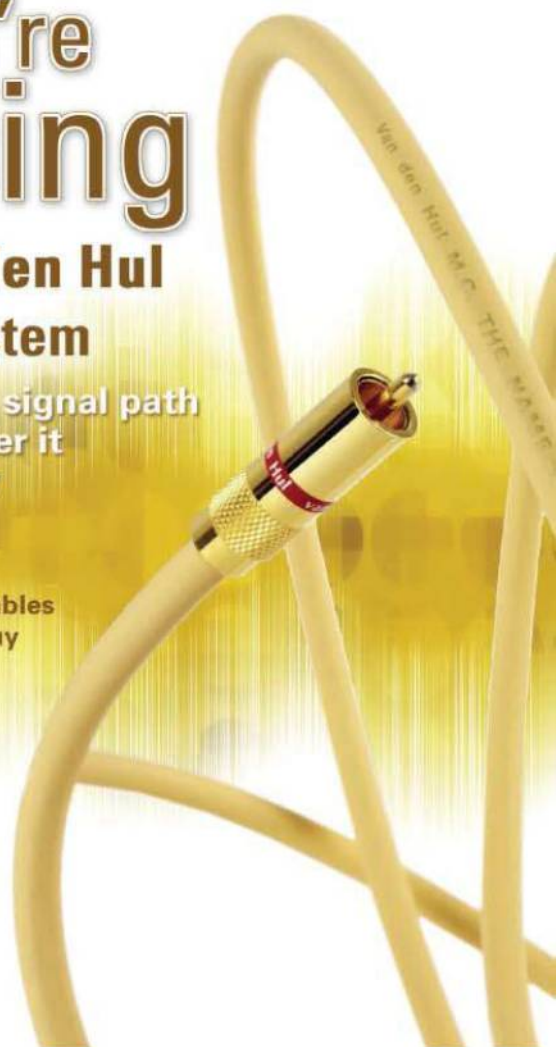
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PYE HF10 Mozart amplifier

The first of its Mozart series, Pye's mono HF10 amplifier was remarkably compact for its day and one of the very first to employ a recognisable PCB. Fast-forward 53 years...
Review: **John Howes & Graham Hinde** Lab: **Paul Miller**

Having produced a succession of highly popular radios and televisions since the 1920s, British company Pye was already a household name when it decided to enter the hi-fi market in 1954. Its huge research and development facilities in Cambridge enabled the company to design equipment of the highest quality.

The first models to be released were an 8W integrated amplifier along with 12W pre/power combinations. These three mono models retailed at between £26.5s.0d. and £42.0s.0d, compared to a Quad II and preamp pairing at £34.10s.0d.

THE MAGNIFICENT MOZART

In 1957 Pye decided to introduce a radically different three-valve 10W integrated amplifier it called the HF10 Mozart. The company wanted to offer a product that not only embraced new styling but which was also smaller in size than those it had offered previously. The designers cleverly used every inch of space and incorporated a newly developed technology – the printed circuit board.

For rigidity both the mains and output transformers were bolted through the chassis, with a single EL34 output valve mounted horizontally behind them. To further save space, a contact-cooled metal rectifier was used instead of a valve rectifier to feed the HT.



ABOVE: Original specification sheet for the HF10 Mozart showing the amp without its cage



ABOVE: 'A perfect match for your Mozart amplifier' – adverts from 1959 for Pye's new FM tuners; the version with a metal case sold for 24 guineas while the chassis version sold for 22 guineas





be preset via a 'settings' table found in the user manual. Pye was proud of this ingenious innovation and called it the 'dialomatic' system. Over 80 settings were listed in the manual, covering all makes of cartridges from Acos through to Woollett!

In 1959 Pye released the matching HFT108 FM Tuner in the same style. This chassis version sold for 22 guineas or with metal case for 24 guineas. This five-valve design had an RF stage and complemented the HF10 well, both in looks and performance. A combined AM/FM tuner was added to the 'Mozart' range in 1961, called the HF113, again sharing the cosmetics of the previous models.

A companion speaker, the HF10BS, was marketed along with the Lowboy cabinet to complete the Mozart family. The HF10BS measured 11½x25x10½in (hwd) and featured an 8in woofer and 4in tweeter, with a frequency response of 60Hz-15kHz. This speaker sold for £22, with matching legs available for £2.2s.0d extra!

JOHN HOWES REMEMBERS

I have a soft spot for the HF10 amplifier; for sheer looks and design alone it has the 'X' factor. Its sound is both clean and dynamic – if slightly subdued at the bass end when compared to push-pull designs. I vividly remember partnering an HF10 with a Vitavox CN191 corner horn in the Ballroom at the 2006 Heathrow Show. This combination worked so well together, impressing everyone who heard it.

It would be unfair not to mention the stereo Mozart HFS20 amplifier here. Introduced in 1959 it boasted 10W per channel and had a separate power amplifier and preamp chassis. Both the HF10 and HFS20 were withdrawn in 1964.



ABOVE: The HF10, Pye's 'radically different' integrated from 1957 (top); ad with specs for the HFS20 from 1959 and the HFT108 pictured in a Lowboy cabinet – a match for Pye's Contemporary speaker

GRAHAM HINDE LISTENS...

Firstly, a little about the system I used for evaluation. The amplifier was the stereo version of the HF10 – the HFS20 from 1959. This was fed by a Garrard 301 deck with Rega RB300 arm and Ortofon MC20 Super cartridge via an AVI 2000 preamp used as head amp. An AVI 2000 CD player was also used, along with a pair of Chario Hyper 1 Mk II standmount speakers, chosen because a sensitivity of 87dB (on paper at least) would make them a better match for the HF20's power output than my cherished Rogers JR 149s. The alternative

would have been to set up my Klipsch Heresys, but the 'Minister Of The Interior' vetoed it! The Charios fired down the length of my 15ftx12ft listening room.

I had to tear myself away from listening to write about what I experienced with this gorgeous little amp! Talk about 'being

there'. With Larry Carlton's 'Easy Evil' from his *Singing, Playing* LP [Blue Thumb], it was as though I were sitting in the studio with the musicians, everything positioned in the soundstage exactly

where it should be and sounding terrific. Best of all, the amp brought out the true subtlety of the guitar solo, which gives a real insight into Carlton's playing style and his choice and use of effects pedals.

Next onto the 301 went the first side of Joni Mitchell's *Don Juan's Reckless Daughter*, with the shimmering guitar

'For sheer looks and design alone the Pye has the 'X' factor'

LEFT: A beautifully preserved sample of the five-valve HFT108 FM tuner – a perfect cosmetic match for the bronze HF10 amplifier

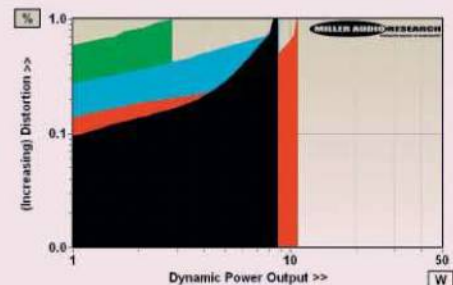


LAB REPORT

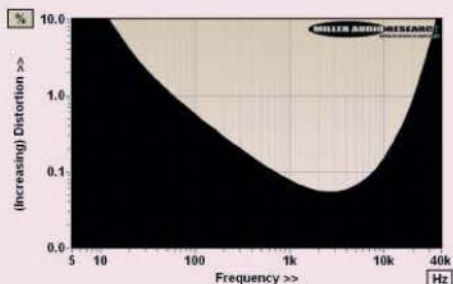
PYE HF10 MOZART (Vintage)

Before the serious business of testing was underway I took the opportunity to optimise the output performance of this beautiful sample of Pye's HF10 from John's collection. The flattest response ($-1.5\text{dB}/20\text{Hz}$, $+3\text{dB}/100\text{Hz}$ and $-0.9\text{dB}/20\text{kHz}$) was achieved with the Filter in its 'out' position, 'Treble' set slightly above +1 and 'Bass' set midway between -2 and -3 to avoid a +4dB shelf below 300Hz. The output impedance was adjusted to a moderate 0.3ohm but the 'Hum Balance' control seemed to provide little benefit. In fact this was a rather noisy sample with its overall A-wtd S/N ratio settling at 67dB (re. 0dBW) and unweighted hum at -47dBV , both outside of the original 53-year old specification.

Otherwise, the power deliver was spot-on with this HF10 reaching a full 9W/8ohm and 11W/4ohm output by 1% THD and with little observable change under dynamic conditions [see Graph 1, below]. Power consumption was also bang-on at 70W. Distortion performance shows the HF10 to be a real star through the midrange and presence regions [see Graph 2, below] where it falls to as low as 0.06% (re. 0dBW). Below 1kHz, however, distortion climbs more obviously than with other valve amps of this vintage, reaching 0.6% at 100Hz and 15% at 10Hz, though this is hardly disastrous. In practice, the fine-tuning of its Damping and Bass controls will have far greater impact on perceived bass performance. Readers are invited to view a comprehensive QC Suite test report for this Pye HF10 Mozart amplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads



ABOVE: Distortion vs. extended frequency from 5Hz to 40kHz at 1W/8ohm. Distortion rises progressively below 1kHz, reaching 4% at 20Hz and 98% at 5Hz

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	9W / 11W
Dynamic power (<1% THD, 8/4/2/1ohm)	9W / 1W / 9W / 3W
Output impedance (20Hz-20kHz)	0.00-0.42ohm (adjustable)
Frequency response (20Hz-20kHz)	+3.2dB to -0.9dB
Input sensitivity (for 0dBW/10W)	46mV / 150mV
A-wtd S/N ratio (re. 0dBW/10W)	68.6dB / 78.5dB
Distortion (20Hz-20kHz, 1W)	0.062-2.9%
Power consumption (Idle/Rated o/p)	72W / 65W
Dimensions (WHD)	270x100x156mm (inc knobs)



ABOVE: Mono radio, tape and phono inputs were provided alongside 'Dialomatic' pickup compensation (left). Our sample is modified with flying 4mm speaker connections but note the 'Hum Balance' and output impedance 'Damping' controls

opening of 'Overture' leading into 'Cotton Avenue', with its wonderful Jaco Pastorius fretless bass work.

This recording has just about everything needed for a test piece: seemingly bottomless lows and towering highs while covering all frequencies in between. Joni's voice sounded both vibrant and natural against a crisp-sounding drum kit with sparse tom tom slams, all underpinned by that sinewy bass. Again, everything was present and correct, and very well defined.

MILES HIGHS

It was time to switch to CD, with another personal favourite – Miles Davis' *Kind Of Blue* (the re-mastered 'right speed' version). Once again, the Mozart delivered, handling all the subtle variances of the performances ensuring that both solos and ensemble playing took on a truly 'live' feel. Talk about re-discovering music!

This had me reaching for a real 'live' recording – Eva Cassidy's *Live At Blues Alley*. Again, it was difficult to tear myself away from this CD to make notes. Eva's voice was a pure instrument, the Mozart revealing just how much control she has over it, whether it was her gentle 'draw you in' vocals or her soaring, sweeping, emotion-filled highs.



ABOVE: Manual for the HF10, which includes details of its 80 phono settings

Could I catch this amp out? Into the AVI's drawer went Jem's *Finally Woken* CD from 2004. With its backing made up of heavy drum machines and slabs of ponderous, downbeat synth bass, the Mozart now appeared to be less than happy. It sounded as if the output transformers were struggling to handle the sheer density of the low-end coming off disc. Indeed, they were saturating to the point where the music was proving uncomfortable to listen to [see Lab Report, opposite].

To verify that the Mozart was the root cause of this, I switched back to my day-to-day amp – a McIntosh solid state. Now, all was as I remembered with this set: foundation-shaking bass reproduced with no difficulties whatsoever – apart from a few more loose bricks!

It does seem a little unfair to compare a 'Mac' with a Mozart, yet despite the issue with very heavy bass, the Mozart does everything that my Mac can do – albeit with sensitive speakers only! ☺

HI-FI NEWS VERDICT

Matched sympathetically, the Mozart amps prove to be thoroughly enjoyable music makers. If your tastes revolve around acoustic music, whether it be jazz, folk, classical (or even soft rock for that matter) then seek out and enjoy one of these compact and stylish models. If, on the other hand, you want to really crank up the bass, you might want to look elsewhere when it comes to satisfying those vintage cravings.

Sound Quality: 80%



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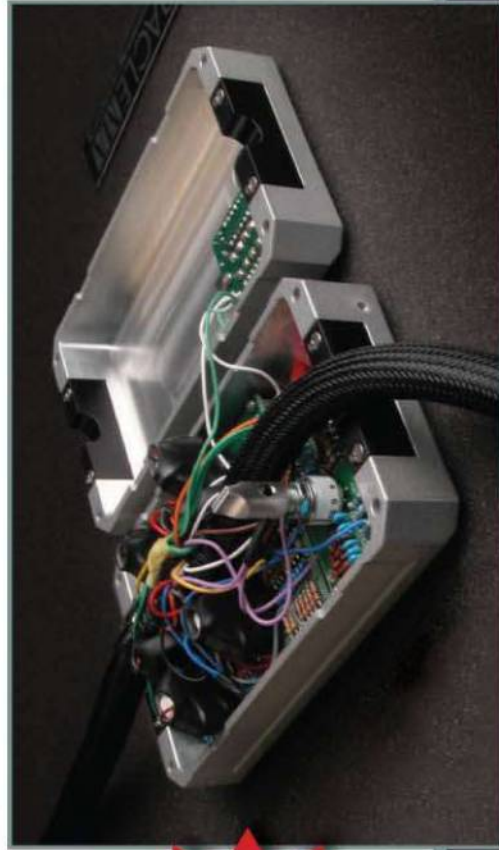
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B77 • TAPE RECORDER • REVOX

Revox B77

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ICONIC
HI-FI

Launched in 1979, the Revox B77 reel-to-reel tape recorder went on to be produced in over 50 variants and, while a domestic machine, found its way into radio stations across the globe – including those owned by the BBC. **Ken Kessler** has the story...

Valve lovers smart every time they have to give the nod to anything solid-state. And yet those who love tubes needn't feel that the objects of their affections are lessened in any way should the transistorised successors happen to be terrific. If any proof is needed that both can co-exist, most Quad fans, for example, will agree that the 303 is a mighty fine unit, yet it does not 'cancel out' the Quad II. And as much love was lavished on Revox's sublime all-valve G36 tape recorder as was slobbered on the 'II.

PRO APPEAL

Tape recorders, however, benefited more from the industry's move to transistors than amps ever did. Why? Because background silence and cool running and stability matter far more when making recordings, with electromechanical devices, especially if the user is a professional. Like the Revox G36, its solid-state replacement, the 77 Series, falls under the category of 'semi-professional', because parent company Studer produced



ABOVE: The Revox B77 Stereo Tape Recorder, feature packed, sturdy and with pro pedigree to boot, no wonder it is highly coveted to this day

LEFT: The A77, which was launched in 1967; another sought after model, original purchasers enjoyed a lifetime guarantee save for capstan, pressure roller and bulbs

dedicated, fully-professional equivalents. What speaks volumes for the G36 and the 77 Series is their appeal to professionals, despite their more domestic mien. The A77 and B77 held their own in both the home and the studio, and pros loved them because they were so compact – a prized virtue when portability was needed.

SMART MONEY

Defining one particular Revox reel-to-reel deck as a 'milestone' presents a dilemma because so many models found devoted followings. And while the G36 is eminently collectable, its lifetime coincided with a period of austerity, and its demise occurred just as domestic hi-fi was on the ascent. This accounts

for its relative rarity as much as the passage of time, though with a little effort G36s aren't that hard to find.

A77s and B77s, however, were on the market during hi-fi's richest decades, from the mid-1960s through to the late 1980s, and they were ubiquitous amongst high-end tape users despite their premium prices. So high was their visibility that they became almost *de rigueur* props in films where the character had to be portrayed as an urbane sophisticate, lounging in a room equipped with a sublime system.

(As recently as the mid-1990s, celebrated film director Quentin Tarantino featured an open-reel – not to mention a turntable – as the sources for a system in a 'slick pad' in the movie *Pulp Fiction*.)



But now we open a can of worms, for among the cognoscenti, you will find not only supporters of either A77s or B77s, you'll even find factions favouring the Mk I versions over the Mk IIs and vice versa (as well as the Mk III and Mk IV versions of the A77). Although this overview will deal with both A and B, as they're so closely related, the smart money would be placed on the later B77 as the model that had the greater impact of the two, and which may be the nicer to use in the modern era.

BEST IN CLASS

For those who weren't hi-fi enthusiasts in the '60s through the '80s, open-reel tape possessed a unique presence, with no modern equivalent thanks to digital technology's narrower span between the mediocre and the magnificent in home recording.

Digital has been a great leveller: you can, for example, purchase pocket-sized digital recorders for under £1000 that will capture sound at 192kHz/24-bit. In the analogue era, tape decks ascended in quality with a distinct correlation to price. And Revoxes were always amongst the dearest – not far off Nagra's heady cost of admission.

It must be stressed here that open-reel usage was always a minority interest, highly specialised

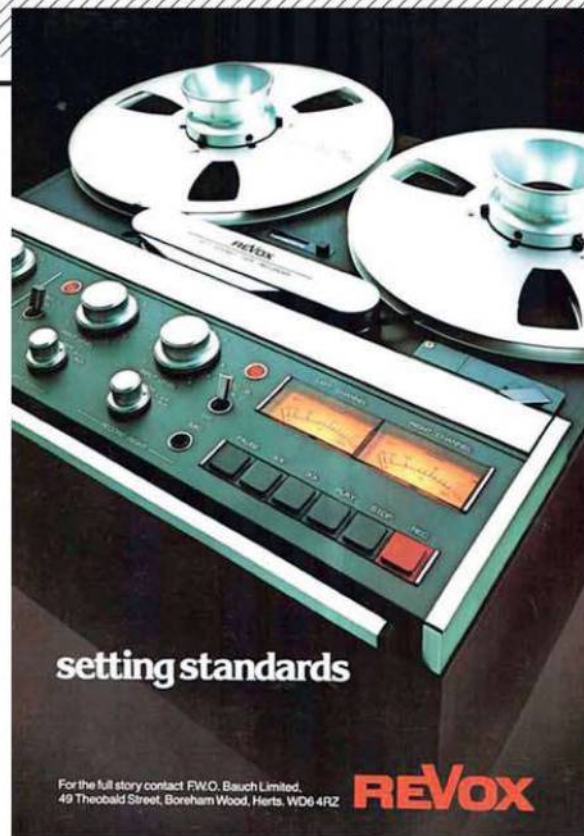
back then because of the cost of blank tape. Any of you stupefied by the BBC's erasing of everything from Beatles' live performances on 'Light Programme' radio shows to episodes of *Dr Who* must appreciate that recordable – no, make that *cheap* – software didn't become a reality until audio cassettes arrived, while VHS did the same for video. Today, for open-reel tapes, the situation has reverted back to one of prohibitive prices, due to the drop in production of blank media.

Another aspect of open-reel

usage that limited it to the rarefied strata of the high-end was the dearth of pre-recorded material. While major labels did issue a wide selection of jazz and classical open-reel

tapes, and of major acts from the Beatles to Aretha to Sinatra, tapes suffered too much fragility and courted too many catastrophes to eliminate the cost vs sound quality issue. Although the pre-recorded open-reel tapes I've owned sounded magnificent, tapes were and are subject to the effects of ageing, including print-through and the shedding of oxides, accidental erasure (how many benighted souls left tapes on top of loudspeakers?) and the worst curse of all: tangling.

It was the latter that made tape handling and transport quality as important for some users as the



ABOVE: Ad from FWO Bauch, sole UK distributor of Revox throughout the '60s and '70s

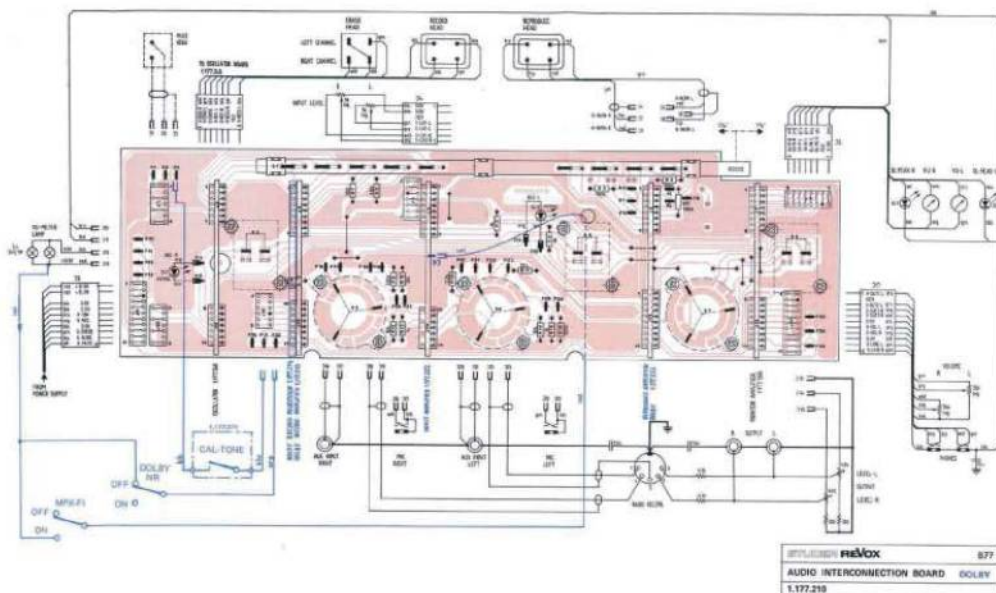
BELOW: B77 audio interconnection board; Studer-Revox offers a wealth of free information at <http://ftp.studer.ch/Public/Products>

sound quality itself. And it was here that Revox excelled.

THE A-TEAM

While a G36 may seem clunky in a large-button, wholly-mechanical way, it did do a remarkable job of keeping tapes secure. What the A77 delivered, in addition to the silence and cool running of transistors, was a magnificent three-motor, direct-drive tape transport system. Its innovations included a capstan motor to drive the tape at constant speed, with the other two motors overseeing the tension of the feeder spool and constant tension for the take-up spool. Rewind and fast-forward speeds were exceptional, too, the winding was admirably smooth, and braking was electromagnetically servo-assisted, the A77 enjoying trickle-down benefits from the Studer pro models.

Also enabling the domestic consumer to enjoy a frisson of professionalism was the number of configurations on offer. Depending on your needs, Revox would supply these decks in either quarter-track or half-track formats, with the most common speed choices offered as 3 $\frac{3}{4}$ ips (9.5cm/sec) and 7 $\frac{1}{2}$ ips (19cm/sec) to suit domestic users who could not be glib about the price of raw tape. The high-speed model coupled 7 $\frac{1}{2}$ ips with the pro-standard of 15ips (38cm/sec).



AUDIO MILESTONES

It should be remembered that these used 1/4in tape, yet their performance at 15ips in half-track mode was formidable. Other variants are known to exist with the even slower speed of 1 1/2ips (4.75cm/sec).

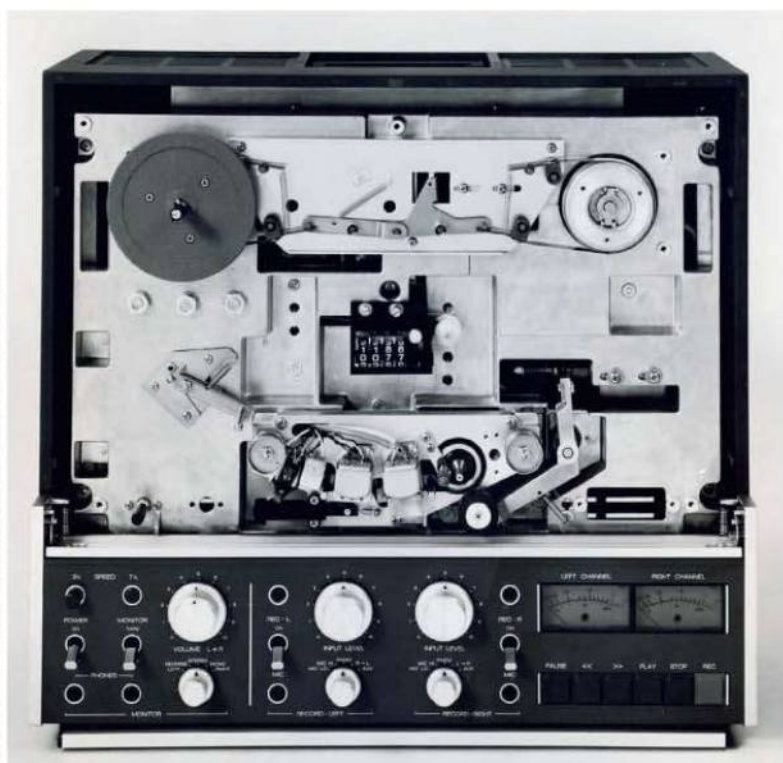
FEATURE PACKED

As studio-inspired machines, Revox A77s were packed with facilities but devoid of gimmicks. The decks featured precise relay controls, accurately calibrated, illuminated VU meters, a four-digit tape counter, photo-electric end-of-tape switching, easy access to the heads for adjusting, cleaning or de-gaussing, plug-in circuit boards that promised easy maintenance or upgrades, separate output for headphones with dedicated volume and balance controls, switchable equalization (NAB for recording and both NAB and IEC for playback), plus special features for editing. Inputs included switchable high/low Mic, Radio and Auxiliary.

Specs were remarkable for a machine measuring only 388x413x178mm and weighing a mere 15kg – positively diminutive when compared to studio hardware.

RIGHT: Inside view of the B77 showing the three AC asynchronous motors, capstan, tachometer and heads; the aluminium die-casting, used for the chassis, extends to the tape headblock, pinch roller and mechanism

BELOW: The B77 Mk II, which offered a built-in vari-speed control that provided speed change of $\pm 10\%$, and beneath it the A77 from 1967, which enjoyed trickle-down benefits from Studer's professional models



The signal-to-noise ratio was stated as better than 58dB at 7 1/2ips and 56dB at 3 3/4ips, with crosstalk better than 45dB in stereo. While that seems crude compared to discrete digital hardware, it translates into a format that failed to rival the LP only for practical considerations related to tape cost and longevity and the availability of pre-recorded material, not for sonic limitations.

Though getting on in years, old A77s hold up well, but the obvious areas need examination, especially the amount of wear on the tape-heads and various moving parts. Despite the A77 being targeted at audiophiles, it had more in common than not with its Studer siblings, so these workhorses certainly make wise buys if vintage kit is your weakness.

TO B OR NOT TO B

After ten years of the A77, which evolved over the decade, as mentioned before, up to Mk IV status, Revox unleashed the B77. Prettier, smoother to operate, and better-sounding, it also looked more 'Studer-like', because its added facilities increased the switch count. It begged to be played with,

handled, operated... desired. The B77 even seemed more robust than the A77, though the older machine was hardly fragile.

Revox built the B77 around an aluminium die-cast chassis, the die-casting extending to the tape headblock, the pinch roller and mechanism. Like the A77, it housed three AC asynchronous motors, the capstan controlled by a tachometer head that read a series

'Revox was to promote its B77 deck as a creative's tool'

of pulses created by the teeth on the circumference of the motor, their rate compared against the frequency of an internal oscillator.

This ensured

exceptional speed accuracy, while reducing wow and flutter. And the A77's relay controls were supplanted by transport controls overseen by solid-state logic.

A three-head machine like the A77, the Revox B77 also had space to accept an optional fourth head, enabling the unit to be compatible with slide-projector synchronisation, just as it was also available in various track and speed configurations like the A77.

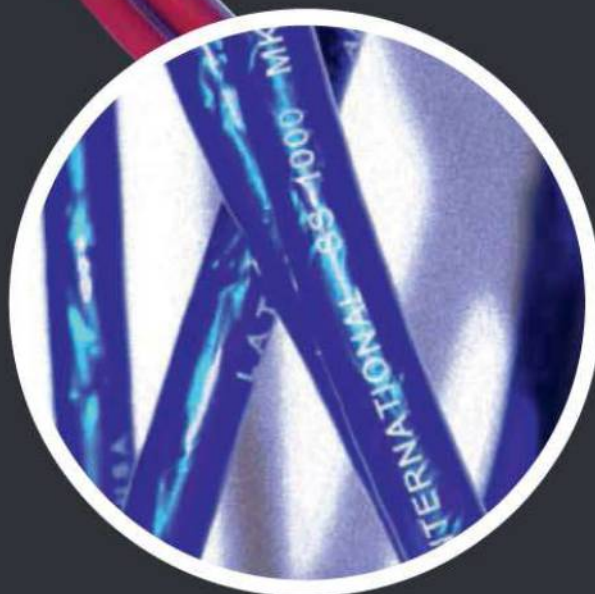
Revox promoted the B77 as a creative recordist's tool, highlighting



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AUDIO MILESTONES

the benefits of the three-head system and its ability to produce effects including conventional sound-on-sound, adding echo or reverb to an existing track, 'Duoplay' when both recorded tracks are used simultaneously but to play back different material, as in language laboratories, and 'Simuplay' for synchronising music on one track with speech on another.

Other niceties to remind the user that they were sharing hardware with the pros were the inclusion of a top-grade splicing block with built-in cutter, fitted to the front panel of the B77, audible tape shuttling and, in the B77 Mk II, built-in vari-speed control. This was activated by a press button and operated by a rotary control that provided speed change of $\pm 10\%$, equal to a pitch change of two semitones.

Despite the added facilities and revisions, the B77 was still exceptionally compact for a tape recorder able to handle 10½in spools. Slightly larger and heavier than the A77, it still weighed only 17kg and occupied a space of 452x414x207mm. Also increased,

however, was the performance over the A77, with gains in nearly every area, from wow-and-flutter to crosstalk to S/N ratio. As far as I can gather, only one functional sacrifice was made when the A77 morphed into the B77, in that customers purchased the B77 with either NAB or IEC equalisation, not both. A study of old yearbooks and magazines shows that the A77 and B77 overlapped during the transition period when the 1970s became the

'Around £500 is a fair price to pay today for a working '77'

1980s, and Revox kept the prices close, between £495 and £600 plus VAT, depending on specification. The irony is that £500 is a fair price to pay today for a working, but cosmetically-challenged '77. As for what £500 was worth 30 years ago,

well, let's just say that adding a zero wouldn't be far off the conversion.

SHEER STYLE

One mustn't be too absolutist about the Revox B77, for it did have competition, especially from then-new-to-these-shores Japanese companies, in particular Dokorder, Sony, Akai and TEAC. American and European makers included Uher, Grundig, Ferrograph, Tandberg and Crown. But the Revox's style, reputation, build-quality, smooth operation, configuration options and ergonomic brilliance, and – it must be added – sheer 'Swissness', captured the hearts of thousands of audio aficionados.

And having heard a B77 at least once a year, every year, at hi-fi shows or in friends' homes, I have to confess that it still takes something very special to beat a B77 for absolute sound quality. ☺

LEFT: Studer and Revox both introduced stereo recorders in 1960, Studer with its pro model, the C37



ABOVE: From 1957, the first portable tape recorder from Revox, the B36
BELOW RIGHT: UK dealers get a first look at the Revox B series in 1979

REVOX ANALOGUE OPEN-REEL TIMELINE

- 1948 Willi Studer founds his eponymous company to manufacture oscilloscopes
- 1949 Studer produces his first tape recorder, successfully marketed as 'Dynavox'
- 1951 Studer co-founds ELA AG with Hans Winzeler; they rebrand the Dynavox tape recorder as the Revox T26
- 1952 Professional Studer 27 enters production
- 1955 Launch of Studer A37 and B37
- 1956 Revox 36-series kicks off with Revox A36
- 1957 Studer's first portable tape recorder, the B30, is released, as is the Revox B36
- 1958 Revox C36 tape recorder launched
- 1960 Stereo recorders enter production, with Studer C37 and Revox D36
- 1961 Revox E36 provides mixing facilities, echo and multiple recording
- 1962 E36 tape recorder is first Revox to be sold in the UK market in perceptible numbers; F36 is the first to use graduated twin beam 'magic eye' level meter
- 1963 Legendary Revox G36 enters production
- 1964 Studer J37 4-track tape recorder
- 1965 Company's first all-solid-state pro tape unit, Studer A62; by this point, 50,000 Revox tape recorders have been sold
- 1967 The Beatles record *Sergeant Pepper's Lonely Hearts Club Band* on a Studer J37 4-track machine; Revox A77 launched
- 1978 Release of the microprocessor-controlled Studer A800 multi-track tape recorder
- 1979/80 Revox B77 introduced
- 1980 Co-operation with Sony for standardising PCM-formats – the beginning of the end for analogue reel-to-reel recording



REVOX B77 IN THE 21ST CENTURY

No judgment call here: the Revox company trading today has nothing to do with tape decks. It's more like B&O, focused on multiroom and AV systems, while Studer still exists for pro manufacturing. Thus, you can't look to either for keeping alive the vintage machinery. But fear not: Revox users are well-supported by specialist repair services, particularly for spares. The best places to find servicing companies and suppliers are dedicated websites with information ranging from DIY servicing to hot-rodding, as well as sourcing refurbished machines beyond those you might find on eBay. We heartily recommend a few evenings studying the lore on www.taperecorder.co.uk and www.reeltoreel.de before you go crazy with eBay.



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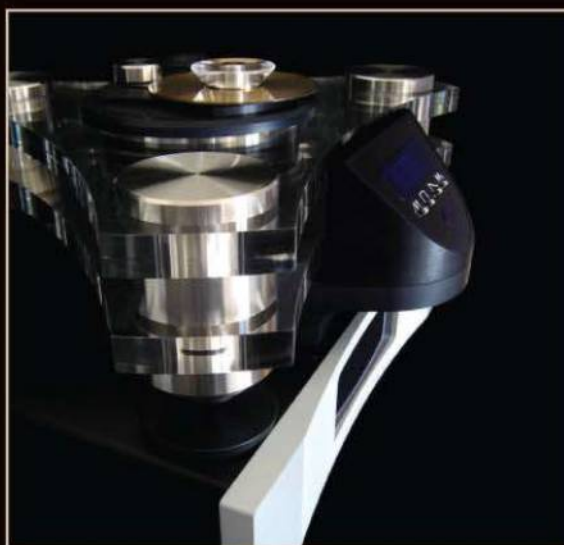
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Mythical.....

Metronome Technologie Kalista Integrated

Apart from being a masterpiece of audio sculpture it is singularly the most persuasive, most spiritually rewarding CD player we have ever heard. It was Alan Sircom who wrote last year "Turning off the music felt like you were insulting the performer, a bit like walking out of a concert" this is so true.

The Kalista literally draws out & sustains every single nuance of the music with a breathtaking delicacy & ease. It is so powerful yet so gentle. This 24 bit/192KHz player produces such vitality in dynamics, colour & spatial content that it leaves one feeling finally that whilst analogue may never leave our affections listening to this player does totally convince us that the future is with digital after all.



dartZeel CTH-8550

Herve Deletraz with the assistance of his partner Serge Roch have taken a simple computer added circuit design and slowly transformed it into the mythical Swiss brand adopted by discerning audiophiles around the world.

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The CTH-8550 extends the design principles applied to the earlier NHB-108 power amplifier and partner pre the NHB-18NS. Amazingly, the front to back developments have literally turned things inside out..... a truly astonishing amplifier with no peers in sight!



Kj west one. We are fortunate to be given the opportunity to audition many new innovative high end products. The exceptional performance capabilities of the items we have featured above reminds us we must keep raising our own standards too. KJ are pleased to be working very closely with Pinewood Music now and in the future offering a superb consultancy partnership which is aimed @ benefiting our fellow music lovers both in our listening rooms as well as their homes.

Magical.....

Continuum Audio Labs. Criterion with Cobra

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Magico V2

Curiously there appears no visual evidence of the magic that apparently underpins this latest revered brand! Just pure honesty. Although impeccably built and finished, there seems nothing remarkable about the prosaic cabinet, it certainly doesn't scream 'lifestyle'?

But this is a classic example of appearance being deceptive, for the musical qualities of this speaker are in a class of their own. This is not hi-fi as we know it-but it is music as it should be. And it comes as a shock.

Designer Alon Wolf has no time for trickery, no wish to indulge in black art, he applies nothing but the most rigorous scientific principles in the design of his loudspeakers. If your goal is to enjoy music with an honesty that has never been heard before, you need look no further....magical!



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iChoose quality?

Are widely accepted music formats undermining the quality of the music we listen to on a daily basis?

The Music Chain

Much is written about music and the musicians who entertain us, and we rightly exalt great musicians. But there is an interlinked chain of participants, two of which are I believe are crucial to our music scene in today's world. For centuries the music chain was a very short one – composers or songwriters, musicians and listeners, and the judgement on quality was immediate. Recording technologies have changed all this exponentially.

Today, we listen to most of our music from a recording and this gives recording engineers the opportunity to avoid poor acoustics, duff notes and off days. This, of course, means the chain has grown to include the recording engineers, the music distribution system (retailers or downloads), hi-fi manufacturers, hi-fi sellers and the hi-fi purchasers, the latter being the listeners. I should start by saying that hi-fi has become an adulterated term that no longer has its original meaning because it's applied to much equipment that certainly should not be termed high-fidelity.

It's said that a chain is only as strong as its weakest link. However, I believe there are two particularly strong links that, if removed from the chain, would seriously damage the quality of recorded music. These are the audiophile, or hi-fi connoisseur, and the specialist hi-fi retailer, the latter in nearly all cases also being the former because it's their interest that has driven them into their particular business. These are the people who most appreciate how exciting and involving music can be and how it can deliver an emotional experience.

Hi-Fi Connoisseurs

So why is the hi-fi connoisseur so important to the music industry? By their nature, audiophiles are generally avid music lovers who enhance their enjoyment through listening to music at its very best quality level, which means playing great recordings through hi-end hi-fi to achieve the most outstanding results. Without the audiophile, the main driver for quality would probably be removed from the chain. Let's be honest, over recent years the majority of music listeners now settle for MP3 convenience and, therefore, mediocre sound quality. If the pendulum ever swings so far that all but a few listen to highly compressed formats such as MP3, music producers will not waste their resources on producing high quality recordings because it would be commercially unnecessary, even if their recording engineers wanted to achieve the best they could. After all, an MP3 or AAC file, the iTunes default format, downloaded at 128 kbps (the most popular download speed), is about one-eleventh the size of a full resolution CD track, 1411 kbps, so the quality is inevitably far inferior. Information is irretrievably lost and the full dynamic range is lacking. Using an iPod while jogging does not really raise a quality issue but playing low-resolution tracks through an iPod docking station that feeds into a decent hi-fi system, is a disaster area. It's rubbish quality made louder. Fortunately, there is still significant demand from audiophiles committed to sound quality to sustain the production of high quality recordings, but it would be a tragedy if there weren't. For example, most classical recordings downloaded as an MP3 or AAC file are a complete waste of time because there is so much information missing that they are reduced to just the essence of a tune.

Specialist Hi-Fi Retailers

Just as essential a link in the chain as the hi-fi connoisseur is the specialist hi-fi retailer and the two are rightly dependent on each other. Without the specialist retailer the hi-end hi-fi manufacturer would have to rely on the internet and hi-fi magazine reviewers to try and assess the relative merits of different brands for their potential customers – a notoriously unreliable decision making process. Specialist hi-fi retailers are constantly being offered new products for assessment and potential stocking and, as it is also their hobby as well as their livelihood, they are greatly interested in achieving the best performance and seeking out the most outstanding combinations. More than that though is their relationship with audiophiles for, if they are to stay in business, they must satisfy the most discerning customers in the industry. The reality is that audiophiles and specialist hi-fi retailers are essential to each other.

LISTED BELOW IS OUR SELECTION OF THE BEST HI-FI DEALERS IN THE UK.

They have been selected because they are known to do an excellent job in guiding customers towards hi-fi that will give years of musical enjoyment and total satisfaction.

Future of Recorded Music

What are the future prospects of maintaining high quality music recordings? We must hope that audiophiles, or hi-fi connoisseurs, or perhaps most accurately described, music lovers, will continue to drive the demand for quality. But another important reason for hope within the mass-market is that there is no longer any over-riding reason for MP3 and AAC to have such a following. These formats were designed to overcome very slow download speeds pre-broadband and small, expensive memory capacity but the trade-off has been quantity at the expense of quality. Download speeds and memory capacity are not significant factors for most people now and will be increasingly irrelevant with time. Full resolution, CD quality, downloads are already available and should become the norm as long as the general public can be made aware of the tremendous quality benefit. This has happened with HD TV so we know this awareness can grow rapidly. In the meantime, we must highly value hi-fi connoisseurs and specialist hi-fi retailers, of which the ones listed on this page represent the UK's finest. Specialist dealers know how to choose the products that combine as a superb system and how to get the best out of it by expert installation in the home. If there's a price premium over an internet purchase, it's probably a small one, but it's unquestionably worth the difference.

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01702 435255

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023 8022 8434

LONDON

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020 8567 8703

N1

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SW11

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Cayin SCD-501	£745	Elac Symphony 8.2	£75	Audiolab 8000a mkIII	£300	Melody Pure black 101	£2299
Consonance Droplet CDP 5.0	£1595	Gale Centre 2	£35	Audiolab 8000M mkIII	£495	Meridian Audio 501	£345
Cyrus cd7q/psxr	£9000	Gale Sub-Zero 10	£150	B.A.T. VK200	£1395	Michell argo	£200
dCS Elgar Plus/Purcell/Verdi	£745	Gershman Avant Garde RX-20	£35	Bel Canto Ref 1000mk2 Mono blocks	£4300	Michell Argo HR + Hera	£500
dCS Scarlatti	£1995	Goldmund EPIQUELO 1+ 2	£2120	Boulder 500 AE	£1750	Michell ISO HR/Hera	£295
dCS Verdi Encore/Elgar Plus/Purcell	£9000	Hales concept 5	£2200	Brylston 7B 2T	£4000	Ming Da MC 7R	£395
Esoteric P03 & D03	£1395	IMF MKIII Ref Pro Monitor	£495	Brylston 7B 3T	£2200	NAD 302	£300
Esoteric X-03	£3500	Infinity Kappa 9	£1995	Burmester 828 Mk II	£2600	Naim Audio 102	£595
Goldmund Meta-Laser-II	£7500	Jamo surround 3000	£990	C.A.T. IL2 Signature	£11500	Naim Audio Hi-CAP	£595
Gryphon Mikado Sig CD	£5750	JBL TLX 03, 121, 111	£1800	Cello Duett 350	£50	Naim Audio Nac.62	£250
Krell 505 Evolution	£6900	JMLab Electra 1037 be	£3250	Chord Electronics spm600	£10500	Naim Audio NAC62	£2200
Krell Evolution 505 cd/sacd	£9950	JMLab Grande Utopia III EM	£10000	Class Audio CAM 350 Monoblocks	£3250	Naim Audio NAC72	£3000
Krell KPS 25 SC 24/96	£7500	JMLab Diabolo Utopia	£4295	Class Audio D88 power amp	£2000	rose RV23s	£400
Krell KPS 25c CAST II	£3600	JMLab Electra 1037 be	£5750	Conrad Johnson Prem 8A monoblocks	£4950	Sonic frontiers SFL-2	£1400
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Sugden CD 21 series 2	£950	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
T-A Pulsar CDT1240R	£695	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
Tag McLaren CDT20R-T2L	£1495	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
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Acoustic Arts Power 1 mk2	£3600	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
Anatek A50	£420	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
Audio Flight Amp Two mkl	£2000	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
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Bel Canto S500U	£1500	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
BOSS technologies WAZOO XL	£1695	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
CRAAF GM450 B	£2350	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
Naim Audio 300B	£1295	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
Krell VAW 400xi	£195	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
Leak Stereo 30	£1500	JMLab Scala Utopia	£13000	Krell Evolution 302	£7995	Krell Evolution 302	£7995
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Graham phantom tonearm SME base.	£1900	£3300
Orpheus cartridge. Light use.	£1950	£3100
SME Model 20/2. VGC.	£2750	£4830
Impulse Kora small horn loudspeaker. Maple.	£350	--
Naim NACD5 CD 2002.	£500	--
Gotham Type 39 monos. 50 watts, class 'A', PPP 300 B. Made by Canary Audio for Western Electric. Like CA 309 / 339 but better o/p transformers and Kondo wire.		
Huge enveloping sound. Refined gluttony.	£6000	£15000
Revolver Turntable. c.1985 c/w OEM tonearm minus counterweight.	£150	--
Living Voice MC 20/80 ohm step up transformer in smart wooden plinth. Excellent.	£400	£800
EAR 859 power amplifier. Elegant looking hair shirt unit. Smart.	£1000	--
Kondo 5-way active x-over. Made by Mr Kondo for in-house horn speaker development. Very rare, maybe unique. Invaluable asset for a man with too many amps and a 5-way horn.	£5000	--
VdH Grasshopper III SLA. 200 hrs. Unused since service and calibration by VdH.	£1200	£2860
Fidelity Research MC201 cartridge. Fully rebuilt by V.den Hul. New cantilever and tip.	£500	--
SME V-12. May 2009. Kondo silver internal wiring. 20 hours use. Perfect. Boxed.	£2800	£3600
Dynaudio Contour S 3.4. Maple. 10 months old. As new.	£2000	£4500
Audio Innovations Series 400 integrated amp with phono. Beefy and chewy sounding class 'A' fun.	£400	--
Tom Evans Linear A power amplifier. As new. Someone love me.	£2500	£4400
Horning Zeus loudspeakers. Cherry. Lovely condition. Boxed.	£1000	£2200
Acoustic Energy AE1MKIII Piano Back finish. 18 months old. Immaculate condition. Box. Manual. Stands included.	£1200	--
Arcam Delta 80 tuner. Bit of an old bag lady, but still continent.	£75	--
New Audio Frontiers 'Supreme' 300B. Hernia inducing behemoth. June '09. Rich, fluid sound.	£7000	£9800
New Audio Frontiers 'Performance' 2A3. Possibly the heaviest 2A3 integrated ever. '09. Lovely.	£5800	£8400
CEC DA 1N. DAC with BNC Superlink, USB, AES/EBU inputs. Balanced / SE outputs. Sept.'09.	£2500	£4200
CEC Tube 53. Very cute and super-neat 5881 integrated. 16 watts. Sweet, refined and detailed sound.	£1500	£2350
Sugden Masterclass Stereo Power Amplifier. Titanium fascia. c.5 years old. Good condition.	£1750	£3675
Electrofluidics 20/20 speaker cable. 5 metre single set. New, unused. Very fine sound.	£300	£500
AudioQuest Topaz HyperLitz interconnect. 5 pin DIN to 2 x RCA	£75	--
JPS Labs Superconductor FX balanced interconnect.	£300	£650
Living Voice flat copper ribbon speaker cable. 5 metre set. Excellent sound.	£500	£1000
Jelco 9" tonearm. '09. Great sounding budget arm. Detachable headshell. Retro 'S' shape. Black.	£290	£450
Kore Eda LLA-1A and PLA-1. Big beefy fun from this tiny Japanese cult package. Very lovable.	£1250	£2500
Icon Audio Phono LA4 preamplifier with Icon Audio capacitor upgrade. 18 months old. Boxed.	£600	£1000
PM Components VP-110S. EL34 integrated - rare unit. Very tidy condition.	£400	--
Dunlop Systemdek II X with RB250 arm. Black. Classic simple suspended deck. Very nice.	£250	--
Enlightened Audio Designs T-8000 Universal transport. Very unusual CD transport Also plays 12" laser discs. Circa 1993. Surprisingly good sounding.	£300	--
Atlas Mavros speaker cable 1.5m pair. Boxed. Hardly used.	£500	--
Vitavox RH330 4-cell mid range horn.	£400 pair	--
Velodyne 1812 active subwoofer with parametric EQ and 5 microphone set-up kit. Silver/ black. Ultimate home cinema sub'. Ex-dem, just about run-in.	£5000	£13500
Horning Agathon Gold loudspeakers with Lowther PM4 Alnico drivers (new July 2009). Natural Oak. Worth it for drive units alone.	£2500	c. £7500
Magnum Dynalab MD10 surround sound decoder.	£500	£2400

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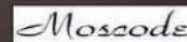
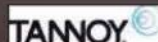
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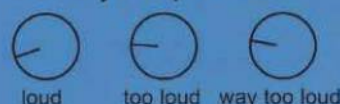
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LAST WORD

OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

So, CD is dead and sales of vinyl are on the up! Er, **Ken Kessler** would like a word, or two...



Among recent audio-related, conversational clichés are two that will drive me nuts in 2010. The first is 'CD is dead', while the second, in some ways the flip-side of it, is the closely-related bleat of 'LPs are back!' Note the mandatory use of an exclamation mark when writing that. Sorry, guys, but it's time to stop and smell the stuff you cover roses with to make them grow.

Let's dismiss the second one first, especially as – to use another cliché – everything is relative. Total global LP sales are, with the most positive spin you can muster, *less than 1%* of total music sales. Far be it for me to wee on the parade, but let me provide a verbal analogy in place of a pie chart, because LP sales shown on a such a diagram would be a wedge so slim as to occupy less than 3.6° of the circle. Sales of LPs are so insignificant that the relationship of the LP to the CD, in terms of units sold, is like that of Ferraris to Toyotas.

REALITY CHECK

Now, I love LPs as much as the next audio casualty, and over 10,000 of them in my listening room attest to that. The point is that we need a reality check, for the sake of our sanity. Because it takes six months to a year for industry bodies to collate sales figures for the previous 12 months, it will

be a while before we see just how bad things were for music sales in 2009. What we do know is that global music sales fell by 8% in 2008, and CD sales dropped by 15%, according to the world music trade organisation, the IFPI. Although I only have the US figures for LPs, the percentages of the sales increases there are the cause of most of the global pro-vinyl hyperbole: stateside, vinyl sales were up over 2007 by 124% by units and 148% by value.

'Phenomenal'? 'Monumental'? I think not: that only brought LPs up to 2.9 million sold during the *whole of 2008*. So call it 4 million for the world. No, let's be *really* generous and say 5 million. To put that into perspective, Susan Boyle's debut sold 1.23 million copies in its first two weeks alone. Because

her target audience was not the segment of the populace using downloads as their preferred means of purchasing, 97% of those 1.23 million copies were what we now call 'physical sales'; in SuBo's case, that means CDs. If that's not enough to convince you that vinyl LPs are as rarefied in the real world as bottles of Miani Rosso, chew on this one: Taylor Swift's *Fearless* alone sold 2.53 million to become the USA's best-selling album of 2009, prior to the Boyle release.

As far as I can tell, neither Boyle's nor Swift's albums have been issued on vinyl. More eye-openingly, just two pop albums

out of the thousands released last year, sold almost as many copies on CD as *all global vinyl sales combined*. So CD is dead, is it?

Which brings us to that premature obituary for CD. What has been fuelling it is the same inane, hyperbolic journalism that has been applied to LP sales, only with negative spin rather than positive. This half-empty glass is usually drained to misery point by observations such as, 'While digital music sales are growing, they have failed to make up for the shortfall of compact disc sales.' So let's look at some figures, again for the USA in 2008, courtesy of the RIAA.

We'll stick with value rather than unit sales for one trenchant reason: keep in mind that the single is all but dead as a physical format, but that in terms of unit sales, downloaded singles count the same as whole albums. (In other words, if you downloaded a 12-song album a track at a time, it would count as 12 units.) For 2008, total sales of downloads and other non-physical music acquisitions came to US \$1.635 billion. And yet physical format sales equalled US \$5.758 billion. Of the latter, CDs accounted for US \$5.471 billion.

Even at the rates at which CD sales are plummeting, and downloads and vinyl are rising, CD has a long way to fall. As of 31 December, 2008, CDs outsold downloads by better than a factor of three. When you consider that digital sales consisted of over a billion individual tracks, yet only 57 million albums, while CD sales were made up of 385 *million* albums and only 700,000 singles, one would have to say that CD remains the dominant carrier for the majority of consumers.

FLAWED JEWEL

Admittedly, it's not for long. Remember, though, as you trash CDs, while spouting aphorisms about how they always sucked and how you always hated them and 'they never sounded like music', those glorious sonic moments provided on 5in discs by the likes of Chesky, Telarc, Classic and Reference. When we finally lay CD to rest, it would be both uncharacteristically decent and honest of us to allow the epitaph to read: 'It really wasn't all bad.' Only the jewel box itself truly sucked beyond redemption. ☹

'Even at the rate sales of vinyl are rising, CD has a long way to fall'

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